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# EXHIBIT 2



Deposition of:  
**Catherine Tucker , Ph.D.**

*April 8, 2021*

In the Matter of:  
**DZ Reserve v Facebook, Inc.**

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1                         UNITED STATES DISTRICT COURT  
2                         NORTHERN DISTRICT OF CALIFORNIA  
3                         SAN FRANCISCO DIVISION

4  
5                         DZ RESERVE, and CAIN MAXWELL  
6                         (d/b/a MAX MARTIALIS),  
7                         individually and on behalf of  
8                         all others similarly  
9                         situated,

10                        No. 3:18-cv-04978-JD

11                        Plaintiffs,

12                        vs.

13                        FACEBOOK, INC.,

14                        Defendant.

15                        -- HIGHLY CONFIDENTIAL --

16                        VIDEO-RECORDED DEPOSITION OF CATHERINE TUCKER, PH.D.  
17                        REMOTE ZOOM PROCEEDING  
18                        Belmont, Massachusetts  
19                        Thursday, April 8, 2021

20  
21  
22  
23                        REPORTED BY:

24                        LESLIE ROCKWOOD ROSAS, RPR, CSR 3462

25                        Job No. 4502127

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1 UNITED STATES DISTRICT COURT FOR THE 2 NORTHERN DISTRICT OF CALIFORNIA 3 4 DZ RESERVE, and CAIN MAXWELL 5 (d/b/a MAX MARTIALIS), 6 individually and on behalf of 7 all others similarly 8 situated, No. 3:18-cv-04978-JD 9 Plaintiffs, 10 vs. 11 FACEBOOK, INC., 12 Defendant. 13 14 -- HIGHLY CONFIDENTIAL -- 15 Video-recorded deposition of CATHERINE TUCKER, 16 PH.D., taken on behalf of the Plaintiff, Remote Zoom 17 Proceeding, Belmont, Massachusetts, beginning at 10:59 18 A.M. and ending at 4:48 P.M., on Thursday, April 8, 2021, 19 before Leslie Rockwood Rosas, RPR, CSR No. 3462. 20 21 22 23 24 25	1 APPEARANCES (Continued): 2 3 LATHAM & WATKINS LLP 4 BY: HILARY H. MATTIS, ESQ. 5 140 Scott Drive 6 Menlo Park, California 94025 7 (650) 328-4600 8 hilary.mattis@lw.com 9 10 Also Present: 11 Shireen Hamdan, paralegal, Cohen Milstein Sellers & 12 Toll PLLC 13 Nikki Sokol, Facebook, Inc. 14 Ron Lazo, Videographer 15 16 17 18 19 20 21 22 23 24 25
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1 APPEARANCES: 2 3 FOR THE PLAINTIFF DZ RESERVE: 4 COHEN MILSTEIN SELLERS & TOLL PLLC 5 BY: GEOFFREY GRABER, ESQ. 6 KARINA G. PUTTIEVA, ESQ. 7 1100 New York Avenue NW, Fifth Floor 8 Washington, DC 20005 9 (202) 408-4600 10 ggraber@cohenmilstein.com 11 kputtiev@cohenmilstein.com 12 13 FOR THE DEFENDANT FACEBOOK, INC., AND THE WITNESS: 14 LATHAM & WATKINS LLP 15 BY: FRANCIS ACOTT, ESQ. 16 PATRICK JOHNSON, ESQ. 17 CATHERINE ANNE RIZZONI, ESQ. 18 505 Montgomery Street, Suite 2000 19 San Francisco, California 94111 20 (415) 391-0600 21 francis.acott@lw.com 22 patrick.johnson@lw.com 23 cat.rizzoni@lw.com 24 25	1 INDEX 2 3 4 THURSDAY, APRIL 8, 2021 5 6 WITNESS EXAMINATION 7 CATHERINE TUCKER, PH.D. 8 9 BY MR. GRABER 8 10 BY MR. ACOTT 151 11 12 QUESTIONS WITNESS INSTRUCTED NOT TO ANSWER: 13 (NONE) 14 15 16 17 18 19 20 21 22 23 24 25

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1	DEPOSITION EXHIBITS		1	MR. GRABER: Good morning. Geoffrey Graber from
2	CATHERINE TUCKER, PH.D.		2	Cohen Milstein for the plaintiff. Also with me today is
3	NUMBER DESCRIPTION IDENTIFIED		3	Karina Puttiveva and Shireen Hamdan, also of Cohen
4	Exhibit 344 Rebuttal Expert Report of Catherine Tucker, Ph.D.	27	4	Milstein.
5			5	MR. ACOTT: Good morning. Francis Acott of Latham & Watkins on behalf of Facebook and the witness.
6	Exhibit 345 Screenshots, MIT Course Number 15.818	89	6	11:01:25
7			7	MS. MATTIS: Hilary Mattis from Latham & Watkins
8	Exhibit 346 Measuring Customer Reactions to Prices, lecture notes	90	8	on behalf of Defendant Facebook and the witness.
9			9	MS. SOKOL: Nikki Sokol on behalf of Facebook.
10	Exhibit 347 MIT Sloan School of Management 15:818 Pricing	99	10	THE REPORTER: Thank you.
11			11	I'll swear you in, Dr. Tucker, if you'll raise
12	Exhibit 348 Digital Platforms Inquiry Report, June 2019	121	12	your right hand, please.
13			13	Thank you.
14	Exhibit 349 The Technology Policy Institute article	128	14	You do solemnly state that the evidence you
15			15	shall give in this matter shall be the truth, the whole
16	Exhibit 350 Expert Reply Report of Armando Levy, Ph.D.	152	16	truth and nothing but the truth, so help you God?
17			17	THE WITNESS: Yes, I do.
18			18	THE REPORTER: Thank you.
19	PREVIOUSLY MARKED EXHIBITS REFERENCED:		19	You may proceed, Counsel.
20			20	11:01:59
21	EXHIBIT NUMBER PAGE		21	EXAMINATION
22	Exhibit 286 156		22	BY MR. GRABER:
23			23	Q. Good morning. Can you please state your full
24			24	name and spell your last name for the record?
25			25	A. Of course. Good morning. Catherine Elizabeth 11:02:07
		Page 7		Page 9
1	Belmont, Massachusetts; Thursday, April 8, 2021		1	Tucker. My last name is spelled T-U-C-K-E-R.
2	10:59 A.M.		2	Q. Thank you.
3			3	Ms. Tucker, you understand you're under oath
4	PROCEEDINGS		4	today?
5	THE VIDEOGRAPHER: We are now on the record.	10:59:03	5	A. Yes, I do. 11:02:32
6	The time is 10:59 Eastern Daylight Time on April 8th,		6	Q. Is there any reason you cannot give your best
7	2021. This is Media Unit 1 of the video-recorded		7	testimony today?
8	deposition of Catherine Tucker.		8	A. No.
9	I'm sorry, folks. I'm going to have to stop.		9	Q. Ms. Tucker, do you have anything with you today
10	I'm having a little technical issue.	10:59:22	10	in the room you're sitting in taking this deposition? 11:02:41
11	(Discussion off the record.)		11	A. So I have my lighting, my AV set up. I do have
12	THE VIDEOGRAPHER: We are now on the record.		12	a copy of my report, and I'm happy to remove that from
13	The time is 11 o'clock a.m. Eastern Daylight Time on		13	the room if you'd prefer. It's a clean copy.
14	April 8th, 2021. This is Media Unit 1 of the		14	Q. No, no, no. That's perfectly fine, and that's
15	video-recorded deposition of Dr. Catherine Tucker, taken	11:00:26	15	what I was really getting at, so you have a copy of your 11:03:01
16	by counsel for the Plaintiff, in the matter of DZ Reserve		16	expert report; is that right?
17	versus Facebook, Incorporated, filed in the United States		17	A. Yes, I do.
18	District Court, Northern District of California, San		18	Q. Okay. And I take it that's a clean copy?
19	Francisco. The case number is 3:18-cv-04978-JD.		19	A. Yes, it is.
20	This deposition is being held via online conference. All parties are attending remotely.	11:00:52	20	Q. All right. Do you have copies of any other 11:03:11
21			21	documents with you today?
22	The court reporter is Leslie Rosas from Veritext.		22	A. No, I don't.
23			23	Q. Ms. Tucker, you've been deposed before; is that
24	Counsel, please state your appearances and		24	right?
25	affiliations for the record.	11:01:09	25	A. Yes, I have. 11:03:25

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1 Q. So you understand the general ground rules;		1 plaintiffs in the case and also the methodology they used	
2 right?		2 to sort of think about a bargaining outcome.	
3 A. Yes, I do.		3 Q. BY MR. GRABER: And you were asked to render an	
4 Q. Okay. So we'll go through this quickly since		4 expert opinion in that case?	
5 you're experienced at that. 11:03:35		5 A. Yes, that's right. 11:07:03	
6 You understand it's a question and answer		6 Q. Okay. And can you just give me a brief overview	
7 format; right?		7 of your opinion in that case, very high level?	
8 A. Yes.		8 A. Very high level. So I was mainly focused on why	
9 Q. And have you taken any depositions on -- via		9 the use of this bargaining use model was a highly	
10 Zoom? 11:03:46		10 simplified and unrealistic methodology given the setting 11:07:28	
11 A. Yes, I have.		11 and the facts of the case, which seemed to ignore a lot	
12 Q. Okay. So you understand that there's a little		12 of what actually happened around the -- it was about a	
13 bit of a time delay, so it's important that you, you		13 now generic agreement, which -- and the actual facts	
14 know, avoid talking over each other -- that we avoid		14 surrounding it.	
15 talking over each other. You need to pause before, you		15 Q. You were testifying for the defense; right? 11:07:50	
16 know, I finish my question so that we don't talk over		16 A. Yes. There, I was testifying for the defense.	
17 each other.		17 Q. And what was the methodology being utilized by	
18 Does that make sense?		18 the plaintiffs that you were opining on?	
19 A. Yes, it does.		19 MR. ACOTT: Object to the form.	
20 Q. Okay. Great. 11:04:12		20 THE WITNESS: So it's a little bit of time ago, 11:08:10	
21 So you were deposed via Zoom; is that right?		21 but at the highest level, they had a bargaining model to	
22 A. That's correct.		22 try and understand: Well, what might have been the	
23 Q. Okay. What case was that?		23 outcome if there had not been a no generic agreement?	
24 A. So I was deposed by Zoom in the Glumetza case.		24 Q. BY MR. GRABER: Did they use a specific	
25 And I was also -- I was also -- I've given evidence at 11:04:35		25 econometric model? 11:08:36	
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1 proceedings via Zoom as well.		1 MR. ACOTT: Object to the form.	
2 It might be worth just stating now that I should		2 THE WITNESS: No, they didn't. And that was	
3 perhaps mention that I have actually been deposed twice		3 actually one of the things I was pointing out. Instead,	
4 since I submitted my report. And both of those occasions		4 they used a highly stylized theory model. And it was a	
5 were on Zoom, too. But, you know, those were not 11:05:03		5 theory model really designed to, you know, illuminate 11:08:52	
6 currently listed in my CV because obviously I had not		6 something very conceptual and hypothetical.	
7 been deposed at the time I submitted my report.		7 And then they used this incredibly, sort of,	
8 Q. Okay. Let's walk through those really quickly.		8 abstract theory model to try and come up with precise	
9 So you mentioned the Glumetza case. Can you		9 numbers for a bargaining outcome.	
10 spell -- or who is the plaintiff and who is the 11:05:21		10 Q. BY MR. GRABER: Okay. Thank you. 11:09:14	
11 defendant?		11 And then you said there were a couple of other	
12 A. So in that case, the defendant was the firm		12 cases that you've testified in, besides the Glumetza	
13 that -- well, basically ended up having the rights to		13 case, since the submission of your report; is that right?	
14 Glumetza. And plaintiffs were there on behalf of firms		14 A. That's right. And they're not listed on my CV,	
15 in the distribution channel who saw what they said was an 11:05:56		15 because obviously I hadn't been deposed. But there have 11:09:32	
16 overcharge.		16 been two depositions since I submitted my report.	
17 Q. Do you know the name of the plaintiff?		17 Q. Okay. So can you walk me through each of those?	
18 A. I'm very sorry I don't know the name of the		18 MR. ACOTT: Object to the form.	
19 plaintiff, but I think it is listed on my report --		19 THE WITNESS: So the first case was the Blue	
20 sorry, it is listed in my CV in my report. 11:06:15		20 Cross Blue Shield antitrust case. And this is -- and in 11:09:54	
21 Q. And what was the nature of your testimony in		21 it, I submitted a report on behalf of plaintiffs as part	
22 that case?		22 of the litigation in the case.	
23 MR. ACOTT: Object to the form.		23 Q. BY MR. GRABER: Was the case pending down in	
24 THE WITNESS: So in the Glumetza case, it was		24 Alabama?	
25 really exploring the but-for world that was proposed by 11:06:37		25 A. Your memory is wonderful. Yes, it was -- it is 11:10:19	

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1 pending in Alabama.		1 MR. ACOTT: To the extent you can answer with	
2 Q. Okay. And can you give me at a very high level		2 that instruction, you may do so.	
3 the nature of your opinion in that case?		3 THE WITNESS: It was what -- at the highest	
4 MR. ACOTT: Object to the form.		4 level, it was a regression model.	
5 THE WITNESS: Yes. So I was asked to evaluate	11:10:43	5 Q. BY MR. GRABER: Was there a type of regression	11:13:40
6 whether health insurance, and in particular Blue Cross		6 model? Just, again, at the highest level. I know	
7 and Blue Shield, was a two-sided platform in terms of the		7 there's different types of regression models. Can you	
8 way that economists think about two-sided platforms.		8 classify it at all?	
9 And I described what a two-sided platform was,		9 MR. ACOTT: Same objections and instruction.	
10 how we thought about what makes a two-sided platform in	11:11:05	10 THE WITNESS: My recollection is it was using a	11:13:57
11 the economics literature and why health insurance didn't		11 general class of models we may think of as being in the	
12 meet the classifications we usually use.		12 GLM class. My memory is too there was a variety of	
13 Q. BY MR. GRABER: So you didn't offer an		13 robustness checks. And I can't recall which exactly of	
14 econometric model in this case; is that right?		14 those -- which of those specifications the opposing	
15 A. So in that case, I referred to some	11:11:28	15 expert focused on.	11:14:27
16 econometrics, which was that I -- one of the opposing		16 Q. BY MR. GRABER: And then you were deposed, you	
17 experts had an econometric model which he purported to		17 said, or you gave testimony in another proceeding; is	
18 suggest implied network effects. And I explained why it		18 that right?	
19 didn't.		19 A. That's right.	
20 Q. I see. Okay.	11:11:54	20 Q. And what's the name of that case?	11:14:44
21 But you did not construct an econometric model		21 A. That is named Integrity Message Boards versus	
22 in that case; is that correct?		22 Facebook.	
23 A. No, I didn't construct one. Instead, I was		23 Q. And you testified on behalf of Facebook, I take	
24 evaluating and looking at an econometric piece of		24 it?	
25 analysis proposed by another expert.	11:12:11	25 MR. ACOTT: Objection to form.	11:15:13
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1 Q. What was the econometric model that you were		1 THE WITNESS: So in that case, I was asked by	
2 evaluating in that case?		2 Facebook to provide an expert opinion.	
3 MR. ACOTT: Object to the form.		3 Q. BY MR. GRABER: And what is the nature of your	
4 THE WITNESS: Can I just double-check with		4 expert opinion in that case?	
5 Francis that it's fine to talk about this? I just don't	11:12:29	5 MR. ACOTT: Object. Object to form.	11:15:33
6 know the rules.		6 And I will just caution the witness not to	
7 MR. ACOTT: Yeah, Catherine, to the extent your		7 reveal communications with counsel.	
8 answer -- we can go off the record if there's a potential		8 Q. BY MR. GRABER: Go ahead.	
9 privilege.		9 A. So at the highest level, this is a case about	
10 MR. GRABER: Let me just -- let me clarify my	11:12:41	10 the accuracy of data used in targeting on Facebook. And	11:15:58
11 question.		11 my -- at the highest level, my opinion was that	
12 Q. I don't want to get into the details of your		12 plaintiffs misstated the role of targeting in modern day	
13 opinion or the details of the econometric model, if there		13 digital advertising and that targeting should be viewed	
14 was any, that you were evaluating on the other side.		14 as an input, not an output.	
15 I just want to know at a very high level what	11:12:57	15 Q. Were you criticizing other opinions in that	11:16:43
16 econometric model you were opining on or you were		16 case?	
17 evaluating or criticizing. Just, I mean, if there's a		17 MR. ACOTT: Object to form.	
18 name for that econometric model. But that's all I'm		18 THE WITNESS: So I just expressed my affirmative	
19 asking.		19 opinion. I think -- again, I hope I'm allowed to say	
20 A. Of course.	11:13:13	20 this, but, yes, I was opposing -- or offering an opinion	11:17:02
21 MR. ACOTT: Objection to form. And I would also		21 on another expert who had submitted a damages	
22 object on the basis of privilege and instruct		22 methodology.	
23 Dr. Tucker not to divulge the contents of privileged		23 Q. BY MR. GRABER: What was the damages methodology	
24 communications with counsel.		24 being utilized that you were criticizing?	
25 THE WITNESS: It was --	11:13:22	25 MR. ACOTT: Object to form.	11:17:19

5 (Pages 14 - 17)

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1        And I'll also just caution the witness not to 2 reveal the contents of privileged communications with 3 counsel.		1 as an input to try and ensure that advertisers get what 2 they're really seeking, which is to optimize their return 3 on investment.	
4        THE WITNESS: So in that case, plaintiff's 5 expert suggested two methodologies which attempted to      11:17:39		4        Q. BY MR. GRABER: Targeting is, in your opinion, 5 important for purposes of getting return on investment?      11:21:33	
6 correlate alleged inaccuracy rates with the value of 7 targeting. And I criticized those methodologies.		6        MR. ACOTT: Object to the form.	
8        Q. BY MR. GRABER: What two types of methodologies 9 were you criticizing?		7        THE WITNESS: So my opinion was -- is that 8 evidently it is wonderful in the digital world that we 9 now have data and vast troves of data which allow us to	
10      MR. ACOTT: Same objection.                          11:18:03		10 better hone and target narrower and narrower audiences so      11:21:58	
11      Same instruction.		11 our advertising dollars are not wasted. However, that	
12      THE WITNESS: So just as a first matter, both of 13 these methodologies produce very different results. One		12 targeting is not an end point. Instead, it is an input	
14 methodology was related to revenue sharing between		13 which can then be used to better enhance return on	
15 Facebook and its partners. The other methodology was      11:18:27		14 investment.	
16 based on a technique developed for a totally different		15        Q. BY MR. GRABER: Thank you. That was helpful.      11:22:17	
17 purpose by a Facebook employee for deciding what		16        Any other testimony or providing of evidence	
18 targeting categories to make redundant.		17 since the submission of your report in this matter?	
19        Q. BY MR. GRABER: Let's start with the revenue 20 sharing approach. Did that utilize an econometric model?      11:19:02		18        A. No.	
21        MR. ACOTT: Object to form.		19        MR. ACOTT: Object to the form.	
22        And I would give the same instruction 23 regarding -- just to caution not to reveal the contents		20        THE WITNESS: No.                                  11:22:41	
24 of communications with counsel in your answer.		21        I apologize I interjected.	
25        THE WITNESS: No. That methodology just used      11:19:27		22        Q. BY MR. GRABER: Dr. Tucker, you understand your 23 testimony today can be used for trial and before a jury?	
	Page 19	24        MR. ACOTT: Object to form.	
1 multiplication.		25        THE WITNESS: Yes, I do.                          11:23:21	
2        Q. BY MR. GRABER: And how about the -- you 3 referred to a second approach that was based on something 4 that Facebook had done; is that right?			Page 21
5        MR. ACOTT: Object to the form.                          11:19:49		1        Q. BY MR. GRABER: And you're prepared to give your 2 best testimony today; right?	
6        THE WITNESS: I referred to a second approach 7 which was based on a document developed by a Facebook --		3        MR. ACOTT: Object to the form.	
8 a single Facebook employee, which he was using amongst 9 other criteria to decide what Facebook categories should		4        THE WITNESS: Yes. The best is -- what I mean	
10 be redundant. Now, that methodology used division and      11:20:11		5 is I will do my best.                                  11:23:39	
11 then multiplication.		6        Q. BY MR. GRABER: Okay. Well, you -- are you 7 having trouble with my question and the use of the term 8 "best"?	
12        Q. BY MR. GRABER: That was not an econometric 13 model either; correct?		9        A. I think I've just never been asked about my best 10 testimony. So I don't know what you mean by that. But I      11:24:02	
14        MR. ACOTT: Object to form.		11 will, of course, endeavor to give my clearest, most 12 accurate, complete testimony that I can.	
15        THE WITNESS: No. To my recollection, it      11:20:30		13        Q. Dr. Tucker, what did you do to prepare for your 14 deposition today?	
16 didn't. I'm not sure if there's going to be any 17 refinements, but to my recollection, it involved mainly 18 division and multiplication.		15        MR. ACOTT: Object to the form.                          11:24:24	
19        Q. BY MR. GRABER: And you said you also opined on 20 the role of targeting; is that right?                          11:20:52		16        THE WITNESS: So I read my report quite a few 17 times. I reviewed some of the data, which has gone into 18 my report. I read the other expert reports. And I also 19 met with counsel twice.	
21        MR. ACOTT: Object to the form.		20        Q. BY MR. GRABER: When did you first meet with      11:25:03	
22        Same instruction regarding contents of 23 privileged communications.		21 counsel to prepare for the deposition today?	
24        THE WITNESS: Yes. I described how in the 25 digital advertising world targeting is -- can be viewed      11:21:07		22        MR. ACOTT: Object to the form. 23        I'll also just caution the witness not to reveal 24 the contents of any communications with counsel.	
		25        THE WITNESS: My memory is Monday.                          11:25:17	

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1 Q. BY MR. GRABER: That was your first meeting to 2 prepare for this deposition; correct? 3 MR. ACOTT: Same objections. 4 Same instruction. 5 THE WITNESS: That is right. 11:25:30	1 this matter? 2 MR. ACOTT: Object to the form. 3 THE WITNESS: So Ms. Schofield is part of my 4 support team at Analysis Group. 5 Q. BY MR. GRABER: Who else is on your support team 11:28:34 6 at Analysis Group, for purposes of this matter? 7 A. Christopher Borek and John Browning. 8 Q. How do you spell Christopher's last name? 9 Sorry.
6 Q. BY MR. GRABER: And did you meet via video 7 conference? 8 MR. ACOTT: Same objections. 9 Same instructions. 10 THE WITNESS: Yes. I haven't had any physical 11:25:46 11 in-person meetings for over a year. So, yes, we met by 12 Zoom. 13 Q. BY MR. GRABER: Yeah. It's a strange world 14 we're living in now. 15 And who -- you met with attorneys from Latham & 11:25:59 16 Watkins; is that right? 17 A. That is -- 18 MR. ACOTT: Same objections. 19 Same instructions. 20 THE WITNESS: Yes. To my recollection, yes, I 11:26:09 21 met with attorneys from Latham & Watkins. 22 Q. BY MR. GRABER: And, Dr. Tucker, I want to be 23 clear, I'm not asking about the substance of your 24 communications with counsel. I'm just going to ask you 25 some questions about who, what, where, when, in your 11:26:23	10 A. Borek is spelled B-O-R-E-K. At least I hope it 11:29:01 11 is. 12 Q. Fair enough. Thank you. 13 Was anyone else on the line during the meeting 14 on Monday? 15 MR. ACOTT: Object to the form. 11:29:27 16 THE WITNESS: I just can't remember. No, I 17 mean, I've given you the Latham -- as you know, on Zoom, 18 you really just see the people if their video's on. I'm 19 not sure if there was someone else who didn't have their 20 video on. But those are the people I can recall speaking 11:29:51 21 and talking during the meeting. 22 Q. BY MR. GRABER: How long was that meeting? 23 MR. ACOTT: Object to the form. 24 THE WITNESS: I want to say perhaps three hours. 25 Something around that time. 11:30:08
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1 meetings with counsel to prepare for your deposition 2 today. Does that make sense? 3 A. Yes, it does. 4 Q. So who from Latham & Watkins was at the meeting 5 on Monday to prepare for your deposition? 11:26:39 6 MR. ACOTT: Object to the form. 7 Q. BY MR. GRABER: Go ahead. 8 A. So Francis was there, Hilary was there, a lady 9 name Kat was there, but I'm afraid I don't know her last 10 name, and I apologize to her for not knowing it. And 11:27:06 11 then a lady named Beth was there. 12 Q. Would that be Beth Deeley? 13 A. Yes. 14 Q. Was there anyone from Facebook there? 15 MR. ACOTT: Object to the form. 11:27:25 16 THE WITNESS: Not that I can recall. I mean, 17 I'm going by who I remember having their videos on, if 18 that makes sense. So not that I can recall, but I can't 19 recall everyone who was at the meeting. 20 Q. BY MR. GRABER: Was there anyone from Analysis 11:27:48 21 Group there? 22 MR. ACOTT: Same objection. 23 THE WITNESS: Yes. My memory is that 24 Kate Schofield was there. 25 Q. BY MR. GRABER: What is Ms. Schofield's role in 11:28:13	1 Q. BY MR. GRABER: Were you shown any documents 2 during that meeting that refreshed your recollection? 3 MR. ACOTT: Object to the form. 4 THE WITNESS: So I don't recall seeing any 5 documents -- I mean, I -- what I -- what I remember at 11:30:32 6 that meeting in terms of documents was a screen share of 7 my own report. And that's actually what I remember as 8 being the focus. 9 Q. BY MR. GRABER: So you don't recall being shown 10 anything other than your report that refreshed your 11:30:57 11 recollection? 12 MR. ACOTT: Object to the form. 13 Also, I would just caution on privilege. If you 14 were shown any documents that refreshed your 15 recollection, as Mr. Gruber said, you can testify about 11:31:08 16 that. But, otherwise, you shouldn't disclose the 17 contents of communications with counsel. 18 THE WITNESS: So, no, my memory is -- the focus 19 was on my report. 20 Q. BY MR. GRABER: You had a second meeting; is 11:31:31 21 that right? 22 A. Yes, that's right. 23 Q. When was the second meeting to prepare for your 24 deposition? 25 A. That was yesterday. 11:31:39

7 (Pages 22 - 25)

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1 inaccuracies in potential reach estimates."	1 referenced here in those paragraphs; right?
2 Do you see that?	2 A. Yes, that's right.
3 A. Yes.	3 Q. So let's go to -- let's talk about one of these
4 Q. So let's walk through some of these subheadings,	4 in a little bit more detail here. So let's take a look
5 and I'll just ask you some high-level questions about 11:39:27	5 at paragraph 57. 11:42:18
6 that. Does that make sense?	6 Do you see that?
7 A. Of course.	7 A. Yes, I think I'm there.
8 Q. So if you go a little further down, do you see	8 Q. On page 28.
9 it says here in subsection A, "Plaintiffs' experts fail	9 A. That is right.
10 to consider many reasons why potential reach estimates 11:39:41	10 Q. And you state in paragraph 57: "In contrast, 11:42:43
11 are unimportant for most advertisers' budgeting	11 and consistent with the enhanced measurability of the
12 decisions."	12 digital age, many Facebook advertisers are interested in
13 Do you see that?	13 performance advertising, or driving specific actions with
14 A. Yes.	14 their ads, such as clicks and conversions, rather than
15 Q. And then you state: "The increased 11:39:52	15 reach. These advertisers are typically focused on trying 11:43:05
16 measurability enabled by the digital age allows	16 to identify or have their ads delivered to specific users
17 advertisers to measure ad performance in detail and in	17 likely to take a desired action, rather than simply
18 real-time, which renders potential reach estimates	18 having their ads delivered to as many people as possible.
19 irrelevant to many Facebook advertisers."	19 A large audience size is tangential to their desired
20 Do you see that? 11:40:05	20 objective and may even be undesirable. Accordingly, 11:43:23
21 A. Yes.	21 these advertisers' budgeting decisions would be driven by
22 Q. And that's one of your opinions in this report;	22 predicted performance of the ads in terms of generating
23 is that right?	23 the desired results and, after the ad has been launched,
24 A. So, yes, that describes one of my opinions. And	24 the actual results generated."
25 I go into detail about why I have that opinion and the 11:40:21	25 Do you see that? 11:43:42
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1 power that goes with it.	1 A. Yes.
2 Q. So you explain why that's your opinion in	2 Q. And then you state: "Potential reach would be
3 photographs 56 through -- sorry.	3 unimportant to their budgeting decisions"; right?
4 A. Forty-five to 55.	4 A. Yes.
5 Q. Thank you. 11:40:41	5 Q. And when you say "their budgeting decisions," 11:43:48
6 So you explain -- you explain the basis for that	6 you're referring to advertisers who select performance
7 in paragraphs 45 to 55; is that right?	7 objectives as opposed to reach objectives; right?
8 MR. ACOTT: Object to form.	8 MR. ACOTT: Object to the form.
9 THE WITNESS: Yes. Yes, I explain the basis for	9 THE WITNESS: So there I am talking about
10 my opinions and the underlying economic transformation of 11:40:51	10 advertisers that have chosen performance objectives. And 11:44:05
11 traditional advertising in paragraphs 45 to 55.	11 I explain why potential reach is tangential to their
12 Q. BY MR. GRABER: And if you go to page 28, do you	12 decisions.
13 see at the top there it says, "Many Facebook advertisers	13 Q. BY MR. GRABER: And the basis for that
14 are interested in performance advertising, which suggests	14 conclusion is set forth in -- in what we just read in
15 potential reach would be unimportant to their budget 11:41:22	15 paragraph 57; is that right? 11:44:30
16 decisions"?	16 MR. ACOTT: Objection to form.
17 Do you see that?	17 THE WITNESS: So the basis for that conclusion
18 A. Yes.	18 is my academic expertise and study of the digital
19 Q. And your basis for that opinion is set forth in	19 transformation and the emergence of performance
20 paragraphs 56 through 62; right? 11:41:36	20 advertising as a key transformative economic force. 11:44:46
21 MR. ACOTT: Object to the form.	21 So I am expressing my academic expertise there
22 THE WITNESS: So that is right, but I would also	22 about something I've written about extensively.
23 call into -- I think it's going to be Exhibits 2 -- 2 and	23 Q. BY MR. GRABER: Okay. You don't cite any of
24 3 and 4, which also relate to that opinion.	24 your writings there, though; right?
25 Q. BY MR. GRABER: Right. And those exhibits are 11:41:59	25 A. So, no, I don't cite any of my particular 11:45:03

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1 writings there, but certainly -- you know, this report is 2 written to reflect my academic expertise and writings. 3 And if you're interested, I can certainly point you to 4 some articles where I discuss this in detail.		1 THE WITNESS: So what I think I said earlier was 2 that certainly all those paragraphs relate to that 3 subheading. As you know, there are other instances in my 4 report which also relate to the subheadings, such as the 5 behavior of one of the named plaintiffs who talked about 11:48:10 6 the extent to which his focus and orientation towards 7 performance advertising meant, that that was what he was 8 interested in.	
5 But, no, this is on the basis of my academic 11:45:22 6 writings.		9 And so, yes, obviously these paragraphs are 10 supportive. But there are other paragraphs in the report 11:48:30 11 which reinforce this point.	
7 Q. Okay. Again, just to be clear, none of those 8 academic writings were cited here; right?		12 Q. BY MR. GRABER: So part of your support for this 13 subsection 2 here at the top of page 28 is your analysis 14 of the behavior of the named plaintiffs in this action?	
9 A. So those academic citings are not cited in 10 paragraph 57. But certainly if you look at my CV, you 11 can see all the articles I've written regarding the 12 digital transformation in performance advertising.	11:45:38	15 MR. ACOTT: Object to the form. 11:48:51	
13 Q. And you've not spoken to any Facebook 14 advertisers in connection with this lawsuit; is that 15 right? 11:45:53		16 THE WITNESS: I would say that that is an 17 illustration of the underlying economic imperative that I 18 describe in this subsection.	
16 MR. ACOTT: Objection. Form.		19 Q. BY MR. GRABER: What's the economic imperative 20 that you're talking about? 11:49:10	
17 THE WITNESS: So in connection with this 18 lawsuit, I have not talked with any Facebook advertisers. 19 But of course I've worked with many Facebook advertisers 20 over the course of studying digital advertising for many 11:46:09		21 A. That the amazing transformation of digital 22 advertising, which finally allows advertisers to measure 23 return on investment, means that rather than looking at 24 unsatisfactory or outdated pieces of information, they're 25 able to focus on what advertisers are really interested 11:49:41	
22 Q. BY MR. GRABER: You've not conducted any 23 specific studies focusing on whether Facebook advertisers 24 believe potential reach is important or unimportant; 25 right? 11:46:20			
	Page 35		Page 37
1 MR. ACOTT: Object to the form.		1 in, which is: Are my advertising -- are my ads 2 delivering return on the money that I'm spending on?	
2 THE WITNESS: So this entire Section III is what 3 I recall my analysis of how potential reach is 4 unimportant for Facebook advertisers. And I've laid, 5 therefore, for the evidence I've considered in forming 11:46:44		3 Q. Is your opinion that potential reach is an 4 outdated metric?	
6 that opinion.		5 MR. ACOTT: Object to the form. 11:49:55	
7 Q. BY MR. GRABER: So in paragraphs -- let's stick 8 with the heading on the top of page 28, "Many Facebook 9 advertisers are interested in performance advertising, 10 which suggests potential reach would be unimportant to 11:47:01		6 THE WITNESS: So when I talk about an outdated 7 metric, what I'm really talking about is what I go into 8 in paragraphs 48, for example. And, you know, if you 9 look to 48, 50.	
11 their bundling decisions."		10 In the past, because we weren't -- advertisers 11:50:18 11 weren't able to measure how well ads performed -- for 12 example, an advertiser might look at newspaper 13 circulation or viewership of TV programs. And that's 14 what I'm referring to as an outdated metric.	
12 Do you see that?		15 Q. BY MR. GRABER: Okay. Let me ask my question 11:50:42 16 again.	
13 A. I'm sorry, I missed the page reference just 14 before you spoke.		17 Dr. Tucker, is it your opinion that potential 18 reach is an outdated metric?	
15 Q. Uh-huh. The top of page 28. 11:47:13		19 MR. ACOTT: Same objection.	
16 A. Top of page 28. So you're talking about the 17 section header?		20 THE WITNESS: So monthly active users is number 11:50:52 21 one. You know, you're using the term "metric." I think 22 the right way to think of it is an estimate.	
18 Q. Correct. Section header 2.		23 And I talk about the utility of potential reach 24 in paragraph 63 to 68 of my report. And I explain that 25 you shouldn't conflate the potential reach estimate with 11:51:25	
19 So do you see where I am?			
20 A. Yes, I see -- I see that you're looking at the 11:47:28 21 section header.			
22 Q. And all of the analysis that you used to support 23 subsection 2 is contained in paragraphs 56 through 62; 24 right? That's what you said earlier; right?			
25 MR. ACOTT: Objection to form. 11:47:50			

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1 something like the circulation of a newspaper. Instead, 2 the way that it's presented is actually encouraging 3 advertisers to use it to hone their targeting criteria.	1 Q. So, Dr. Tucker, you don't believe that potential 2 reach is a metric. Is that your testimony?
4 Q. BY MR. GRABER: Dr. Tucker, you understand that 5 your testimony here can be used for trial; is that right? 11:51:45	3 MR. ACOTT: Object to the form.
6 MR. ACOTT: Object to the form.	4 THE WITNESS: So I -- you keep on -- so I am 5 reacting, perhaps, to the -- I'm going to pronounce his 11:54:45 6 name poorly -- Chiagouris report, where he persistently 7 described potential reach as an estimate.
7 THE WITNESS: Yes, I do.	8 All I am just pointing out is that, as I 9 described in paragraph 16, Facebook describes this as an 10 estimate. 11:55:16
8 Q. BY MR. GRABER: You understand your testimony 9 may be played in front of the jury; right?	11 Q. BY MR. GRABER: I'm asking something different.
10 MR. ACOTT: Same objection. 11:51:56	12 Dr. Tucker, is it your view that potential reach 13 is not a metric?
11 THE WITNESS: Yes, I do.	14 MR. ACOTT: Object to the form.
12 Q. BY MR. GRABER: Okay. So I'm going to ask you 13 the same question again. It seems to be pretty 14 straightforward, so I'd just like you to answer it for 15 me. If it's difficult, that's fine. You know, we can 11:52:08 16 let the jury decide.	15 THE WITNESS: So it is my opinion that potential 11:55:34 16 reach is an estimate and is a useful guideline for 17 advertisers who are trying to hone their targeting 18 criteria and work out if they've got too small an 19 audience or too big an audience.
17 But let me ask you again: Is it your opinion in 18 this matter, Dr. Tucker, that potential reach is an 19 outdated metric?	20 Q. BY MR. GRABER: Dr. Tucker, I think I still 11:55:57 21 don't have an answer to my question. Let me -- let's -- 22 I don't think this is a hard question. Let's imagine 23 we're in front of the jury. And maybe we'll play this in 24 front of the jury.
20 MR. ACOTT: Same objection. 11:52:25	25 I've asked you a simple question. Do you think 11:56:14
21 THE WITNESS: My opinion is that potential reach 22 is not a metric, it is an estimate. And my opinion is -- 23 is that potential reach is provided to advertisers to 24 help them hone their targeting criteria.	
25 If we're talking about something like a 11:52:45	
Page 39	Page 41
1 newspaper circulation, then, yes, in some sense that is 2 an outdated metric in the digital era.	1 that potential reach is a metric or not?
3 Q. BY MR. GRABER: Is Facebook's potential reach 4 outdated?	2 MR. ACOTT: Object to the form.
5 MR. ACOTT: Object to the form. 11:53:02	3 I'll also just add that Dr. Tucker has answered 4 the question and provided her opinion several times.
6 THE WITNESS: So potential reach -- no. I mean, 7 I wouldn't say potential reach is outdated. Potential 8 reach is something which advertisers can use to work out 9 if they've got too broad or too narrow an audience. I 10 won't describe that as outdated. 11:53:29	5 MR. GRABER: Counsel, Counsel, there's no 11:56:27 6 speaking objections allowed. You know that.
11 Q. BY MR. GRABER: It remains on -- the potential 12 reach metric remains on Facebook's Ads Manager even 13 today; right?	7 MR. ACOTT: I understand.
14 A. So, yes, it does. And it continues to have the 15 utility I described to advertisers to allow them to hone 11:53:49 16 their targeting criteria.	8 MR. GRABER: We're going to get an answer to 9 this very simple question.
17 Q. Right.	10 Q. Go ahead, Dr. Tucker. 11:56:35
18 And it's a useful metric for advertisers, isn't 19 it?	11 A. I can't answer it any other way. You know, it 12 is an estimate which is useful for advertisers trying to 13 hone their targeting criteria.
20 MR. ACOTT: Object to the form. 11:53:59	14 If by the use of metric you mean something that 15 advertisers use to evaluate return on investment in ad 11:56:54 16 spend, no, it isn't, in my opinion.
21 Q. BY MR. GRABER: So, again, you're using the word 22 "metric." And this is an estimate. And it is a useful 23 estimate for advertisers in terms of allowing them to 24 hone their targeting criteria in the way I describe in 25 paragraphs 63 to 68 in my report. 11:54:21	17 Q. Do you think it's a metric at all?
	18 MR. ACOTT: Object to the form.
	19 THE WITNESS: So -- no, as I said before, it's 20 an estimate which provides a guideline to allow 11:57:15 21 advertisers to hone their targeting criteria.
	22 Now, we have not -- you know, you're asking me 23 repeatedly to define a metric. I'm just saying I don't 24 believe that it's a metric in the way that the Chiagouris 25 report used the term, where it was suggesting that it was 11:57:42

<p>1 a metric used by advertisers to optimize advertising      2 budget allocation decisions.      3 Q. BY MR. GRABER: Would it surprise you to learn      4 that Facebook itself refers to potential reach as a      5 metric? 11:57:58</p> <p>6 MS. DEELEY: Objection to form.</p> <p>7 THE WITNESS: So I'm not -- if -- so what can I      8 say? I mean, Facebook can -- many Facebook data      9 scientists can refer to many things in many different      10 ways. I think what's important, though, is that it -- 11:58:23      11 potential reach is not a metric in the way that the      12 Chiagouris report was using the term, which suggests it's      13 a metric in terms of outcomes or allocating advertising      14 budget decisions.</p> <p>15 Q. BY MR. GRABER: I just want to make sure we have 11:58:43      16 clear testimony from you, Dr. Tucker.</p> <p>17 Set aside the Chiagouris report. I'm just      18 asking you, Dr. Tucker: Do you view potential reach as a      19 metric or not?</p> <p>20 MR. ACOTT: Object to the form. 11:58:59</p> <p>21 THE WITNESS: So, no, I don't view it as a      22 useful metric for thinking about advertising budgeting      23 decisions. And that is the sense in which metric is      24 being used in this case. And so, no, I don't think      25 potential reach classifies as a metric in that sense. 11:59:16</p>	<p>Page 42</p> <p>1 return on ad spending delivers a certain percentage.      2 Then a -- potential reach is not in any case      3 that you're sort of trying to hit a particular potential      4 reach number. Instead, it is given in the form of a      5 guideline and encourages you to think: Oh, am I going 12:01:21      6 too broad? Am I going too narrow?      7 Q. BY MR. GRABER: So that was helpful, Dr. Tucker.      8 So you recall I asked you just a couple of      9 minutes ago about whether it would surprise you that      10 Facebook itself has referred to potential reach as a 12:01:43      11 metric. Do you recall that question?      12 A. Yes, I do.      13 Q. So based on your testimony today, it sounds like      14 your view is that when Facebook employees or executives      15 are referring to potential reach as a metric, they really 12:02:06      16 don't have it right; right?      17 MR. ACOTT: Object to the form.      18 THE WITNESS: Well, I mean, I think -- you know,      19 it is my observation that -- you know, that people often      20 use casually the word "metric" when they mean number in 12:02:26      21 the same way that people often use the word "utilize"      22 when they mean use.      23 Now, of course, that may -- you know, that may      24 happen. I'm just saying that as someone, you know,      25 who -- if you think of metric as in some sense -- you 12:02:44</p>
<p>1 Q. BY MR. GRABER: Do you think it classifies as a      2 metric in any sense?</p> <p>3 MR. ACOTT: Object to the form.</p> <p>4 THE WITNESS: So -- you know, so first of all,      5 it's an estimate. And usually when we think about 11:59:33      6 metrics, they're more of an objective number. That's my      7 first hesitation.</p> <p>8 And usually when we think about -- when I'm      9 teaching, you know, and we use the term "metric," it's      10 suggesting some kind of objective by which you evaluate 11:59:57      11 an outcome. And so if we use potential -- if we take the      12 definition of metric as being a number by which you use      13 it to evaluate an outcome -- now, I'm not sure if      14 potential reach would be a metric in that sense.</p> <p>15 Instead, it's acting as a guideline where you're trying 12:00:22      16 to work out how to be not too narrow and not too broad.</p> <p>17 Q. BY MR. GRABER: You said that potential reach is      18 not an objective number; is that right?</p> <p>19 MR. ACOTT: Object to the form.</p> <p>20 THE WITNESS: No. And I'm sorry if I said that 12:00:41      21 wrongly or the record didn't pick it up. Thank you for      22 allowing me to clarify.</p> <p>23 I say you're looking -- when you think about a      24 metric, you're often looking for an objective target.</p> <p>25 So, for example, perhaps I'm wanting to ensure that my 12:00:54</p>	<p>Page 43</p> <p>1 know, in a more formal sense and being related to      2 something that's -- a firm would be objectively using to      3 evaluate outcomes, then I don't think that common use of      4 metric is a substitute for number. You know, meets that      5 way in which I think of a metric and the way in which it 12:03:09      6 was being used -- the word "metric" was being used in the      7 Chiagouris report.</p> <p>8 Q. BY MR. GRABER: Yeah, but coming back to my      9 question, it's your view that when Facebook employees are      10 referring to potential reach as a metric, they really 12:03:26      11 have it wrong, because it's not a metric. Am I right?</p> <p>12 MR. ACOTT: Objection to form.</p> <p>13 THE WITNESS: You know, you're referring to      14 Facebook employees using the term "metric" in a context      15 in a document you haven't shown me. And so, you know, 12:03:46      16 I'm not able to comment on any specific cases.</p> <p>17 I am just saying that there's often a casual use      18 of phrases, such as I give an example of utilize for use,      19 and similarly metric for number.</p> <p>20 But I think the key thing is that one of the 12:04:06      21 things I was asked to do was to rebut the Chiagouris      22 report. And it is using metric in a certain sense.</p> <p>23 I'm very happy to look at any documents that you      24 want to put in front of me in terms of what Facebook      25 employees have used in terms of the word "metric." So, 12:04:22</p>

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1 you know, if you want to do that, I'm very happy to.		1 studies these things. You know, so, for example, if	
2 Q. BY MR. GRABER: Well, maybe we'll do that. But		2 someone uses the term "extant" when they mean existing, I	
3 I just want to make sure I understand where you're coming		3 certainly wouldn't correct them or presume to do that,	
4 from.		4 because I realize that the use of extent has evolved in	
5 According to you, Dr. Tucker, potential reach is	12:04:39	5 some sense from its original narrow meaning.	12:07:34
6 not really a metric. But at the same time, Facebook		6 So, no, I don't presume to tell anyone what	
7 employees do refer to potential reach as a metric. So		7 language they should use. You know, that's not my place.	
8 I'm trying to understand the disconnect.		8 But my place is to say that if we think of a metric as	
9 A. So I don't know --		9 being an objective measure by which advertisers	
10 MR. ACOTT: Object to the form, to the extent	12:04:57	10 evaluate -- any firm evaluates performance, then	12:07:52
11 there's a question.		11 potential reach is not a metric.	
12 THE WITNESS: So, you know, I have not		12 Q. BY MR. GRABER: Okay.	
13 testified, and I hope I haven't, that Facebook employees		13 MR. ACOTT: Geoff, we've been going for a little	
14 have referred to Facebook -- has referred to potential		14 over an hour, so I guess whenever you're done with this	
15 reach as a metric. You suggested that they had. I've	12:05:09	15 set of questions might be a good time to take a break.	12:08:08
16 said they may have done. That wouldn't surprise me.		16 MR. GRABER: Just a few more questions.	
17 But I certainly haven't testified or suggested		17 Q. Let me go back to a question that I asked you a	
18 myself that Facebook employees have used potential --		18 while ago and make sure I -- we have a clear answer.	
19 metric from referring to it. So I just should clarify		19 Dr. Tucker, you have not conducted any specific	
20 that. And I'm sorry if my language has been loose.	12:05:32	20 studies focusing on whether Facebook advertisers believe	12:08:30
21 Q. BY MR. GRABER: Well, it is your testimony today		21 potential reach is important or unimportant; right?	
22 that if someone's talking about potential reach and		22 MR. ACOTT: Object to the form.	
23 they're being careful, they should not talk about it as a		23 THE WITNESS: So what I would refer you to	
24 metric; right?		24 there is the series of correlations that I present in	
25 A. So --	12:05:49	25 Exhibits 9 to -- sorry, 9 to 11, which show the lack of	12:08:51
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1 MR. ACOTT: Object to the form.		1 correlation between estimated audience size and revenue	
2 THE WITNESS: It is my testimony that if you're		2 from advertiser and budget from advertiser and so on.	
3 using metric in the sense of the Chiagouris report to		3 Q. BY MR. GRABER: Thank you, Dr. Tucker. That	
4 mean an objective number that a firm uses to evaluate an		4 clears my question. So let me ask it in a little bit of	
5 outcome, then, no, potential reach doesn't fit that	12:06:05	5 a different way.	12:09:15
6 definition.		6 Outside of this lawsuit, you have not conducted	
7 Q. BY MR. GRABER: But set aside the Chiagouris		7 any specific studies focusing on whether Facebook	
8 report. Let's set that aside. Does that make sense?		8 advertisers believe potential reach is important or	
9 Dr. Tucker, do you follow me?		9 unimportant; right?	
10 A. Yes, we can set it aside. Though, in some	12:06:24	10 MR. ACOTT: Object to the form.	12:09:25
11 sense -- at that point we're straying aside from my -- my		11 THE WITNESS: So outside of this lawsuit, I have	
12 report. Because, you know, I was reacting to what -- you		12 written extensively all about what advertisers value in	
13 know, Mr. Chiagouris' report and what I said about it in		13 the digital age. And I talk about what they value. And	
14 my report.		14 that doesn't include an estimate such as potential reach.	
15 Q. I just want you to understand my question.	12:06:39	15 But I have not written something which	12:09:53
16 So, Dr. Tucker, I'm setting aside the Chiagouris		16 explicitly says potential -- you know, evaluated	
17 report. I'm just asking for your view, independent of		17 potential reach. Because it's just not -- you know, it's	
18 the Chiagouris report.		18 not relevant for digital advertising measurement.	
19 It is your testimony today that if someone is		19 Q. BY MR. GRABER: Dr. Tucker, you cannot rule out	
20 talking about potential reach, and they're being careful,	12:06:55	20 the possibility that a Facebook advertiser who selects a	12:10:12
21 they should not talk about it as a metric; right?		21 performance adjective still views potential reach as	
22 MR. ACOTT: Object to the form.		22 important; right?	
23 THE WITNESS: No, I don't presume to tell anyone		23 MR. ACOTT: Object to the form.	
24 to make certain language choices. I, of course, make		24 THE WITNESS: So, you know, I think I go into	
25 certain language choices because I'm a professor who	12:07:13	25 this when I talk about -- you know, it's very hard for	12:10:26

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1 me, as someone who studies this, to imagine the set of 2 unusual circumstances which would have to take place for 3 potential reach to have influenced any kind of budgeting 4 decision. I certainly haven't seen any evidence in the 5 case that this has happened.	12:10:49	1 Q. BY MR. GRABER: So potential reach helps 2 advertisers target their ads; is that right?	
6 You know -- I mean, all I can say is that, you 7 know, if you want to put something in front of me where 8 it definitely happened or where you believe it happened, 9 I'm happy to look at that and evaluate it.		3 MR. GRABER: Let's go off the record.	
10 But, you know, my general opinion is that 11 it's -- everything about the digital world means that 12 that is highly unlikely to occur. And if it was to 13 occur, then it would have to occur in a highly 14 individualized context.	12:11:07	4 THE VIDEOGRAPHER: We are now going off the 5 record. The time is 12:31 p.m. Eastern Daylight Time.	12:30:52
15 Q. BY MR. GRABER: It's your testimony that you've 16 seen no evidence that advertisers use potential reach for 17 budgeting decisions?	12:11:26	6 (Discussion off the record.)	
18 MR. ACOTT: Object to the form.		7 THE VIDEOGRAPHER: We are now back on the 8 record. The time is 12:36 p.m. Eastern Daylight Time.	
19 THE WITNESS: So my testimony is that I have 20 certainly seen nothing which is persuasive that 21 advertisers use potential reach in their budgeting 22 decisions.	12:11:43	9 Q. BY MR. GRABER: Dr. Tucker, I had a question 10 pending. Let me just reask that.	12:35:51
23 Evidently I realize that plaintiffs have put 24 forth some evidence that they believe shows that in my 25 report. I explain why I don't think that is persuasive.	12:12:09	11 Do you recall we were talking about the 12 potential reach in the context of targeting? Do you 13 recall that?	
		14 A. That is right.	
		15 Q. Okay. And I had asked you, so potential reach 16 helps advertisers target their ads; is that right?	12:36:05
		17 MR. ACOTT: Object to the form.	
		18 THE WITNESS: It helps them precisely work out 19 if the target audience they've selected may be too narrow 20 or too broad.	12:36:23
		21 Q. BY MR. GRABER: And can we agree that an 22 advertiser's ability to target their ads is important?	
		23 MR. ACOTT: Object to the form.	
		24 THE WITNESS: So in the digital environment, 25 certainly targeting is a huge innovation and valuable to	12:36:40
	Page 51		Page 53
1 MR. GRABER: Let's take a break.		1 advertisers.	
2 THE WITNESS: Thank you.		2 Q. BY MR. GRABER: So if potential reach helps 3 advertisers target their ads and targeting is valuable to 4 advertisers, wouldn't you agree with me that potential 5 reach is also valuable to advertisers?	12:37:07
3 Would it be all right to come back at 25 past 4 the hour?		6 MR. ACOTT: Object to the form.	
5 MR. GRABER: Yeah, let's go off the record.	12:12:27	7 THE WITNESS: No. Because the value of 8 targeting comes from the use of data to select audience 9 and not halfway is it impressions.	
6 THE VIDEOGRAPHER: We are going off the record.		10 Potential reach is a guideline, which makes sure 11 you don't target too much and don't target too little.	12:37:28
7 The time is 12:12 p.m. Eastern Daylight Time.		12 So targeting is evidently of huge value in the digital 13 era. Potential reach is a guideline which helps 14 advertisers work out if they target too much or target 15 too little.	12:37:51
8 (Recess.)		16 Q. BY MR. GRABER: I want to make sure I understand 17 this. So according to you, Dr. Tucker, targeting is of 18 huge value to advertisers; right?	
9 THE VIDEOGRAPHER: We are now back on the 10 record. The time is 12:29 p.m. Eastern Daylight Time.	12:29:38	19 MR. ACOTT: Object to the form.	
11 Q. BY MR. GRABER: Welcome back, Dr. Tucker.		20 THE WITNESS: Yes. The ability to use data to 21 select an audience and show ads to that audience is of 22 huge value.	12:38:02
12 Dr. Tucker, is it your view that Facebook's 13 potential reach is irrelevant for most advertisers?		23 Q. BY MR. GRABER: And potential reach provides 24 some of the data that helps advertisers target; isn't 25 that right?	12:38:20
14 MR. ACOTT: Object to the form.	12:30:12		
15 THE WITNESS: It is -- my view is that it's 16 irrelevant for budget -- budget-making decisions for most 17 advertisers.	12:29:55		
18 Q. BY MR. GRABER: So what is potential reach 19 relevant to for advertisers?			
20 MR. ACOTT: Object to the form.	12:30:36		
21 THE WITNESS: So as I describe in my report -- 22 and this refers back to paragraph 63 to 68 -- potential 23 reach is a helpful guideline which advertisers can use to 24 work out: Well, is the target audience I selected too 25 broad or too narrow?			

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<p style="text-align: right;">Page 54</p> <p>1 A. No.</p> <p>2 MR. ACOTT: Object to the form.</p> <p>3 Q. BY MR. GRABER: Potential reach doesn't provide</p> <p>4 any data that helps advertisers target?</p> <p>5 A. No. Because the valuable data in targeting is 12:38:25</p> <p>6 data such as: Have I just been searching for credit card</p> <p>7 offers? Where do I live?</p> <p>8 That's the valuable data, because that will</p> <p>9 allow a credit card company to identify people who are</p> <p>10 likely prospects and not waste money to people who are 12:38:51</p> <p>11 not looking for a credit card.</p> <p>12 Potential reach is a guideline as part of the</p> <p>13 targeting process, but it's not the data that is used for</p> <p>14 targeting.</p> <p>15 Q. Potential reach provides data to advertisers; 12:39:10</p> <p>16 right?</p> <p>17 MS. DEELEY: Object to the form.</p> <p>18 THE WITNESS: Potential reach provides an</p> <p>19 estimate to advertisers that allows them to assess -- or</p> <p>20 at least some advertisers to assess whether or not 12:39:23</p> <p>21 they're going to be too broad or too narrow.</p> <p>22 You know, there's not more I can say. I mean,</p> <p>23 that's its role.</p> <p>24 Q. BY MR. GRABER: Well, yeah, I mean, what I'm</p> <p>25 getting at here is what I think is a pretty 12:39:39</p>	<p style="text-align: right;">Page 56</p> <p>1 and then they look at that and they say, "Gosh, that's</p> <p>2 actually a bit broader than we were thinking. Let's hone</p> <p>3 it in a bit."</p> <p>4 But it's pretty relative to where the value's</p> <p>5 being created in the targeting process. Potential reach 12:41:49</p> <p>6 is a tool which may or may not be used by some</p> <p>7 advertisers when trying to hone their targeting criteria.</p> <p>8 But it's certainly not a driver or source of value in the</p> <p>9 targeting process.</p> <p>10 Q. You're saying that potential reach is useful but 12:42:13</p> <p>11 not valuable?</p> <p>12 MR. ACOTT: Object to the form.</p> <p>13 THE WITNESS: So I am saying that some</p> <p>14 advertisers -- some advertisers, you know, have got a</p> <p>15 custom audience who have a set target market, aren't 12:42:28</p> <p>16 going to be using potential reach to hone their targeting</p> <p>17 criteria.</p> <p>18 Another advertiser potentially could start</p> <p>19 off with thinking, "Well, I'm going to use these</p> <p>20 targeting criteria," then see the dial go all the way 12:42:48</p> <p>21 over to broad and say, "No, I'm going to actually try to</p> <p>22 hone my targeting further and think what I can do to be</p> <p>23 more precise."</p> <p>24 Now, that advertiser may end up making a better</p> <p>25 advertising decision in that case, but the value is being 12:43:08</p>
<p style="text-align: right;">Page 55</p> <p>1 straightforward, easy question.</p> <p>2 You have stated clearly that targeting provides</p> <p>3 huge value and is important to advertisers, and potential</p> <p>4 reach is used in the targeting process; is that correct?</p> <p>5 A. Yes. When you say "used in the targeting 12:40:03</p> <p>6 process," we just have to be distinctive that we're not</p> <p>7 implying, of course, that this is targeting data. And</p> <p>8 that's where I was being -- trying to clarify.</p> <p>9 Q. Okay. Fair enough.</p> <p>10 So if potential reach is useful in a very 12:40:17</p> <p>11 important process such as targeting, why isn't potential</p> <p>12 reach also important?</p> <p>13 A. Well, I mean, in some sense I go through the</p> <p>14 reasons why that is true in Section III of my report.</p> <p>15 Let's be clear. So value from targeting. The 12:40:45</p> <p>16 fact you could target a 43-year-old female who's just</p> <p>17 searched for a credit card offer who lives in a suburb of</p> <p>18 Boston, that is incredibly valuable. It means you're not</p> <p>19 going to be wasting impressions.</p> <p>20 Now, for many cases, the advertiser is going to 12:41:07</p> <p>21 already have that target market in mind. Potential reach</p> <p>22 is not that useful as an adjustment.</p> <p>23 There may be some advertisers who had specified</p> <p>24 an audience such as women over the age of 40 in</p> <p>25 Massachusetts who are interested in credit card offers, 12:41:30</p>	<p style="text-align: right;">Page 57</p> <p>1 unlocked by the fact that the advertiser has further data</p> <p>2 to further hone their targeting decision rather than the</p> <p>3 nudge given by the potential reach in the audience style</p> <p>4 dashboard.</p> <p>5 Q. BY MR. GRABER: So potential reach helps 12:43:26</p> <p>6 advertisers make better decisions about their targeting;</p> <p>7 right?</p> <p>8 A. So --</p> <p>9 MR. ACOTT: Objection to form.</p> <p>10 THE WITNESS: I mean, I -- again, I feel like 12:43:36</p> <p>11 I've answered this. But let me try again.</p> <p>12 So for some advertisers, it may help them to</p> <p>13 think, "I need to do a better job with targeting." That</p> <p>14 would be the process.</p> <p>15 Q. BY MR. GRABER: But does it help them -- does it 12:43:52</p> <p>16 help them target better?</p> <p>17 MR. ACOTT: Object to the form.</p> <p>18 THE WITNESS: No, because the potential reach --</p> <p>19 let's imagine I start off with too broad a campaign. Say</p> <p>20 I'm just targeting everyone over the age of 18 in 12:44:15</p> <p>21 Massachusetts. You know, then the advertiser has to make</p> <p>22 decisions: Well, how am I going to hone further my</p> <p>23 targeting criteria?</p> <p>24 If the advertiser makes the right decisions and</p> <p>25 chooses an audience which is a better match for their 12:44:38</p>

<p style="text-align: right;">Page 58</p> <p>1 product, then the potential reach will have given them a 2 useful nudge to have done that.</p> <p>3 But, really, again, it's only a nudge. And the 4 value which would be created in terms of making the 5 better targeting decision would come from the advertiser 12:44:57 6 choosing further targeting criteria, which better allow 7 them to select an audience which would be relevant for 8 their ad.</p> <p>9 Q. BY MR. GRABER: Okay. So according to you, 10 Dr. Tucker, potential reach does not help advertisers' 12:45:12 11 target better?</p> <p>12 MR. ACOTT: Object to the form.</p> <p>13 THE WITNESS: So as I say, it gives them a 14 useful nudge to try and target better in some 15 circumstances. 12:45:28</p> <p>16 Q. BY MR. GRABER: So it's not helpful, but it just 17 gives them a nudge; is that right?</p> <p>18 MR. ACOTT: Object to the form.</p> <p>19 THE WITNESS: So it -- while an advertiser is 20 creating a Facebook ad, potential reach and the 12:45:52 21 associated dial is there as a nudge to get them to be 22 thoughtful about their targeting criteria.</p> <p>23 It's the thoughtfulness about the targeting 24 criteria, which is unlocking the value. A nudge is just 25 a nudge. 12:46:12</p>	<p style="text-align: right;">Page 60</p> <p>1 is at all important or relevant to advertisers, according 2 to you.</p> <p>3 And you've testified that advertisers use it as 4 a nudge to, you know, help them target. And I'm trying 5 to get an understanding as to whether there's any other 12:48:14 6 value that advertisers can get from the potential reach 7 metric.</p> <p>8 A. I'm saying that the -- the value to advertisers 9 is this nudge which encourages them to think more 10 carefully about their targeting decisions. 12:48:34</p> <p>11 And, you know, as to whether it has any other 12 value -- you know, in my opinion, this is the main value 13 for the vast majority of advertisers that it's providing, 14 this nudge.</p> <p>15 Now, it's hard to think of the -- you know, 12:48:54 16 given it's a temporary number that comes up on a 17 temporary screen, it's hard to think of any other value 18 it's really providing than the one given by the clear 19 context in which it's presented. And, also, it's 20 discussed in the literature surrounding it. 12:49:13</p> <p>21 Q. What literature discusses potential reach 22 specifically?</p> <p>23 A. Oh, I'm sorry. When I say that, I should be 24 clear. I'm referring to, for example, that AdStage 25 article. And I'm talking about the guidelines given to 12:49:27</p>
<p style="text-align: right;">Page 59</p> <p>1 Q. BY MR. GRABER: So the potential reach helps the 2 advertiser unlock value. Is that your testimony?</p> <p>3 A. No.</p> <p>4 MR. ACOTT: Object to the form.</p> <p>5 THE WITNESS: No. My testimony is that 12:46:20 6 potential reach is a nudge to encourage the advertiser to 7 use appropriate data to unlock the value of targeting.</p> <p>8 Q. BY MR. GRABER: Other than providing advertisers 9 a nudge, does potential reach play any other useful role 10 for advertisers? 12:46:47</p> <p>11 MR. ACOTT: Object to the form.</p> <p>12 THE WITNESS: So I -- I will point you back to 13 those paragraphs, which I think are 63 to 68 in my 14 report, where I describe how potential reach is presented 15 and the context in which advertisers see it. 12:47:12</p> <p>16 I think I've described quite clearly how it can 17 potentially be this useful nudge for advertisers in that 18 section. I also discuss, for example, an AdStage 19 article, which describes how advertisers could use it.</p> <p>20 I don't know how much more I can say, because I 12:47:36 21 think it's quite well written in those paragraphs, 63 to 22 68.</p> <p>23 Q. BY MR. GRABER: Well, I'm just trying to make 24 sure I understand your testimony, Dr. Tucker. I mean, 25 I'm trying to get an understanding of how potential reach 12:47:48</p>	<p style="text-align: right;">Page 61</p> <p>1 advertisers about how you should think about that, that 2 the broad, clearly defined narrow buckets.</p> <p>3 Q. So it's your testimony that potential reach does 4 provide some value to advertisers; right?</p> <p>5 MR. ACOTT: Object to the form. 12:49:47</p> <p>6 THE WITNESS: It is my testimony that potential 7 reach provides advertisers the nudge to unlock the value 8 of targeting for their campaign.</p> <p>9 Q. BY MR. GRABER: And that provides some value to 10 advertisers; right? 12:50:01</p> <p>11 MR. ACOTT: Object to the form.</p> <p>12 THE WITNESS: So, again, we come to this 13 distinction. You have a nudge, but the value is really 14 being created by the better use of targeting data.</p> <p>15 So I think it is a useful image, a useful dial 12:50:18 16 for advertisers to nudge them to think carefully about 17 targeting. And the value in it lies in that nudge to 18 encourage them to make best use of the targeting function 19 of Facebook.</p> <p>20 Q. BY MR. GRABER: So it does -- so potential reach 12:50:43 21 does provide some value to Facebook advertisers; right?</p> <p>22 MR. ACOTT: Object to the form.</p> <p>23 THE WITNESS: No. I mean, again, the value 24 that's provided to Facebook advertisers comes from the 25 combination of targeting and measurement and also, 12:51:00</p>

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1 obviously, the provision of eye balls and all of this --		1 basis of potential reach. And as you know, there was a	
2 these innovations surrounding that. Now, that's where		2 section in my report which discusses why their actual	
3 the value lies.		3 behavior could be taken to contradict that.	
4 And obviously Facebook provides many tools to	12:51:22	4 Q. Right. But I'm talking to you about plaintiffs'	
5 try and help advertisers unlock the value of that		5 contentions in this lawsuit. Does that make sense?	12:56:04
6 combination of eye balls, targeting and measurement. But		6 A. Yes.	
7 it doesn't change where the volume is. These are just		7 Q. And you understand that one of plaintiffs'	
8 tools to help advertisers unlock that value. And that's		8 contention -- contentions in this lawsuit is that	
9 the distinction I'm trying to draw.		9 potential reach is important; right?	
10 Q. BY MR. GRABER: Let me ask it this way:	12:51:47	10 A. So, yes, plaintiffs are claiming that potential	12:56:30
11 Dr. Tucker, is it your view that potential reach provides		11 reach influenced their budget allocation decisions. Yes.	
12 absolutely no value to Facebook advertisers?		12 Q. And that potential reach is important in general	
13 MR. ACOTT: Object to the form.		13 to advertisers. That's one of plaintiffs' contentions;	
14 THE WITNESS: It is my view that if we're		14 right?	
15 thinking about the value unlocked by Facebook in terms of	12:52:08	15 A. So my -- so I'm happy to go and look at the most	12:56:54
16 delivering ROI, no, potential reach isn't part of that		16 recent Amended Complaint. Certainly I was focused -- I	
17 value.		17 am focused on statements which describe how this	
18 On the other hand, it is my view that potential		18 importance lead it to matter for budget decisions.	
19 reach, amongst many other tools, is something which is		19 You're asking me for the sort of general	
20 potentially useful for advertisers to make sure they are	12:52:31	20 proposition about whether plaintiffs say it is important.	12:57:24
21 unlocking that value.		21 And, yes, plaintiffs do say it is generally important,	
22 Q. BY MR. GRABER: Look at page 35 of your report.		22 and they point to its importance in terms of influencing	
23 A. Yes.		23 how they thought about allocating budget and spending	
24 Q. So you state here: "Facebook advertisers are		24 money on Facebook.	
25 also presented with estimated daily reach, which is more	12:53:42	25 Q. Well, let me ask you the question this way: You	12:57:42
	Page 63		Page 65
1 relevant than potential reach for budgeting purposes."		1 don't believe that potential reach is important to	
2 Do you see that?		2 advertisers; right?	
3 A. Yes, I do.		3 MR. ACOTT: Object to the form.	
4 Q. And your basis for that statement is set forth		4 THE WITNESS: So I don't believe that potential	
5 in paragraphs 69 through 72; is that right?	12:54:05	5 reach affects how advertisers allocate their budgets.	12:58:01
6 MR. ACOTT: Objection to form.		6 Q. BY MR. GRABER: Okay. But did you believe that	
7 THE WITNESS: So, again -- I should be careful,		7 potential reach is important to advertisers or not?	
8 because I know basis is a legal meaning. But certainly		8 A. Without wanting to rehash my earlier answers, I	
9 my explanation of that statement is set forth in		9 think Facebook's -- potential reach is one among many	
10 paragraphs 69 to 72.	12:54:21	10 tools that Facebook provides to advertisers and -- but	12:58:29
11 Q. BY MR. GRABER: And that's a complete		11 that does not render it important about budgeting	
12 explanation; right?		12 decisions of ads.	
13 MR. ACOTT: Object to the form.		13 Q. Do you think potential reach is important to	
14 THE WITNESS: So, yes, I think it summarizes the		14 advertisers in general?	
15 major points about why it is that something which is	12:54:42	15 MR. ACOTT: Object to the form.	12:58:50
16 personalized and geared to that particular advertiser		16 THE WITNESS: So now you're saying -- can I just	
17 will be more useful.		17 clarify something? I was pausing. You said "advertisers	
18 Q. BY MR. GRABER: So let me ask you this,		18 in general." Are we now going out of the world of	
19 Dr. Tucker: Is it your understanding that one of		19 Facebook, or are we still focused on potential reach on	
20 plaintiffs' contentions is that potential reach is	12:55:23	20 Facebook for Facebook advertisers?	12:59:23
21 important? Right?		21 Q. BY MR. GRABER: We're only talking about	
22 A. So yes.		22 Facebook here.	
23 Q. And you disagree with that; right?		23 A. Okay. Just double-checking, because when you	
24 A. I should be clear that plaintiffs have stated		24 say "in general," I think about the broader ecosystem.	
25 that they made advertising budgeting decisions on the	12:55:41	25 So I think that for some advertisers, potential	12:59:34

<p style="text-align: right;">Page 66</p> <p>1 reach gives them a useful nudge to unlock the value of 2 Facebook advertising, as I said before.</p> <p>3 Now, is it -- you know, you used the word 4 "important," which is, you know, a very broad term. Is 5 it -- you know, do I believe it's a useful nudge? Yes. 13:00:01</p> <p>6 Do I believe it's important in the sense of driving 7 behavior? No.</p> <p>8 Q. So you don't think that potential reach drives 9 advertiser behavior at all. Is that your testimony?</p> <p>10 A. I think it encourages advertisers to make better 13:00:25 11 targeting decisions in some circumstances where the 12 advertiser may have been too broad or too narrow in their 13 initial target market selection. That's what I believe.</p> <p>14 Q. So sometimes it does drive -- I'll restate it.</p> <p>15 So it's your testimony, Dr. Tucker, that 13:01:03 16 sometimes potential reach does drive advertiser behavior; 17 is that right?</p> <p>18 MR. ACOTT: Object to the form.</p> <p>19 THE WITNESS: It -- like any other educational 20 tool for advertisers, it encourages them to make better 13:01:18 21 decisions and potentially launch more successful 22 advertising campaigns in certain circumstances for 23 certain advertisers.</p> <p>24 Q. BY MR. GRABER: But potential reach is an 25 educational tool, Dr. Tucker? 13:01:34</p>	<p style="text-align: right;">Page 68</p> <p>1 to write it down and then later on ignore all the far 2 more relevant measures about campaign performance. So it 3 just seems implausible to me.</p> <p>4 Q. BY MR. GRABER: So you don't think advertisers 5 do that; right? 13:03:48</p> <p>6 MR. ACOTT: Object to the form.</p> <p>7 THE WITNESS: So if -- I mean, you know, I just 8 want to be completely precise here. If we've been 9 talking -- we're talking so far about potential reach as 10 presented in the Ads Manager interface. 13:04:10</p> <p>11 I'm just saying that the steps that an 12 advertiser would have to go through, which means taking 13 that number, manually copying and pasting it, which is a 14 reasonably, you know, tedious process, putting it in a 15 separate Excel spreadsheet, whatever, and then using 13:04:31 16 that, cross-referencing it with later outcomes for that 17 performance and ignoring all the actual outcomes that are 18 presented for you in a convenient manner by the Facebook 19 dashboard, it just seems implausible.</p> <p>20 Q. BY MR. GRABER: Would you say it's highly 13:04:48 21 implausible?</p> <p>22 MR. ACOTT: Objection to the form.</p> <p>23 THE WITNESS: I would say -- I would say that it 24 just seems an incredibly unusual set of events and 25 behaviors to be suggesting it happens. 13:05:03</p>
<p style="text-align: right;">Page 67</p> <p>1 A. So when I say "educational tool," I don't mean 2 in the sense of me or professor or something like that. 3 What I mean is that Facebook has a lot of resources -- 4 maybe we should call it a resource for advertisers -- 5 that help advertisers try and unlock the value of the 13:01:52 6 Facebook advertising platform. And potential reach is 7 one of those resources or tools.</p> <p>8 Q. Dr. Tucker, isn't it possible that advertisers 9 use potential reach after running their campaigns to 10 determine the reach percentage out of the total audience? 13:02:19</p> <p>11 MR. ACOTT: Object to the form.</p> <p>12 THE WITNESS: Well, it would be highly unusual 13 and difficult to do so. Why? Well, remember potential 14 reach is an estimate that is presented when you're 15 creating your campaign. It's not recorded anywhere. So 13:02:39 16 I'd have to write it down separately. And then -- for 17 some reason, I'd have to write it down separately. 18 And then after my campaign has launched, I'd 19 have to look at that thing I wrote down separately more 20 than the actual performance outcomes of my campaign, 13:02:56 21 which tell me how many people I have reached and how cost 22 effective that is and so on. 23 So, you know, it seems to -- you know, any use 24 of potential reach to evaluate the outcome of an 25 advertising campaign would have to require the advertiser 13:03:27</p>	<p style="text-align: right;">Page 69</p> <p>1 Q. BY MR. GRABER: So it would surprise you of that 2 if you learned that advertisers do that; right?</p> <p>3 MR. ACOTT: Object to the form.</p> <p>4 THE WITNESS: So I know, for example, that both 5 named plaintiffs claimed they did something of that 13:05:36 6 order, where they would note down the number, record it 7 separately, and then look back on it when they were 8 evaluating their campaigns.</p> <p>9 I am just saying that given the amazing wealth 10 of information advertisers actually have access to to 13:05:53 11 evaluate their campaigns, that it is very -- you know, 12 it's an unusual and surprising claim.</p> <p>13 Q. BY MR. GRABER: You're talking about 14 Dan Ziernicki? The named plaintiff Dan Ziernicki?</p> <p>15 A. I am talking about -- yes, I mean, I'd go -- I 13:06:17 16 mean, again, I don't want to talk in the abstract, and my 17 report goes into this in detail.</p> <p>18 But I certainly -- you know, certainly I've read 19 the deposition testimony which relates to what this 20 process would have to involve to actually use it for 13:06:39 21 advertising budgeting decisions.</p> <p>22 Q. Let's talk about advertisers in general. Okay? 23 Facebook advertisers in general.</p> <p>24 Would it surprise you that Facebook advertisers 25 used potential reach after running their campaigns to 13:07:07</p>

<p style="text-align: right;">Page 70</p> <p>1 determine the reach percentage out of the total audience?</p> <p>2 MR. ACOTT: Object to the form.</p> <p>3 THE WITNESS: So I'm glad I made that</p> <p>4 clarification earlier that I was talking about Ads</p> <p>5 Manager. Your question seems to suggest you're talking 13:07:28</p> <p>6 about reach and frequency bias. Now --</p> <p>7 Q. BY MR. GRABER: No. No, I'm not talking about</p> <p>8 that.</p> <p>9 A. Okay. So are you talking about reaching</p> <p>10 frequency bias or are you talking about advertiser using 13:07:39</p> <p>11 the typical Ads Manager interface?</p> <p>12 Q. I'm talking about using the Ads Manager's</p> <p>13 interface.</p> <p>14 A. Correct. So --</p> <p>15 Q. So with that clarification, let me ask it again. 13:07:58</p> <p>16 Would you be surprised that advertisers use</p> <p>17 potential reach after running their campaigns to</p> <p>18 determine the reach percentage out of the total audience?</p> <p>19 MR. ACOTT: Object to the form.</p> <p>20 THE WITNESS: Well, it would seem -- yes, it 13:08:18</p> <p>21 would surprise me. And I can tell you why it would</p> <p>22 surprise me that that would be -- the advertisers would</p> <p>23 find that a useful thing to do.</p> <p>24 And the reason it would surprise me is if we go</p> <p>25 to my Exhibit 7, if an advertiser was to do that, then, 13:08:35</p>	<p style="text-align: right;">Page 72</p> <p>1 this graph, for 75 -- in 75 percent of instances, you're</p> <p>2 below 4.6 percent.</p> <p>3 And what you're suggesting, as an advertiser is</p> <p>4 doing, is that they would have a reason to monitor</p> <p>5 whether or not they were at 3.5 or 4. And somehow that 13:11:06</p> <p>6 would be meaningful to their advertising decision making.</p> <p>7 And I'm saying that doesn't -- that doesn't make sense,</p> <p>8 given that they have very relevant metrics available to</p> <p>9 them about how many people have actually seen their ad,</p> <p>10 how many people have responded to it in a positive way 13:11:25</p> <p>11 and what the cost of those conversions have been.</p> <p>12 Q. Well, let's stay on Exhibit 7, though.</p> <p>13 Are you saying that -- let's take the 30th</p> <p>14 percentile. Okay? And that shows here -- your analysis</p> <p>15 shows a ratio of impressions to audience size of 13:11:43</p> <p>16 0.055 percent.</p> <p>17 Do you see that?</p> <p>18 A. That's right.</p> <p>19 Q. And you're saying that number is not very useful</p> <p>20 because it's so small; right? 13:11:58</p> <p>21 MR. ACOTT: Objection to form.</p> <p>22 THE WITNESS: Well, the reason it is not useful</p> <p>23 is that you are suggesting that advertisers would look at</p> <p>24 that percentage and then make some advertising allocation</p> <p>25 decision on its basis. 13:12:15</p>
<p style="text-align: right;">Page 71</p> <p>1 as you can see, for the 75th -- up to the 75th</p> <p>2 percentile, what they're going to see is they've hit</p> <p>3 below 5 percent of that potential reach. And I'm not</p> <p>4 sure why knowing that you've hit 3 or 4 percent would be</p> <p>5 a tool informative in thinking about your ad campaign.</p> <p>6 Q. BY MR. GRABER: You don't think those types of</p> <p>7 percentages are informative about the performance of an</p> <p>8 ad campaign?</p> <p>9 MR. ACOTT: Object to the form.</p> <p>10 THE WITNESS: So, again, with reference to</p> <p>11 Exhibit 7, the typical budget for an advertiser means</p> <p>12 that, as I say, up to the 75th percentile they're going</p> <p>13 to be hitting below 4.6 percent of that potential reach.</p> <p>14 Now, in those 75 percent of cases, it -- the</p> <p>15 budget is in nowhere close to any threshold of hitting</p> <p>16 potential reach. Knowing that they were at 3.5 or</p> <p>17 4 percent of the potential reach figure seems completely</p> <p>18 uninformative relative to something actually relevant,</p> <p>19 such as: Well, what is my cost for conversion? What is</p> <p>20 my return on ad spend? 13:10:20</p> <p>21 Q. BY MR. GRABER: Is that -- and are you saying</p> <p>22 that, Dr. Tucker, because -- I'm looking at your</p> <p>23 Exhibit 7. Is that because those percentages are so low</p> <p>24 that the -- for example, 50th, 40th, 30th percentiles?</p> <p>25 A. Yes. I'm saying that for 75 -- you know, in 13:10:41</p>	<p style="text-align: right;">Page 73</p> <p>1 And if you're going to make an advertising</p> <p>2 allocation decision, it suggests you're comparing across</p> <p>3 campaigns. And in this case, while what we're learning</p> <p>4 is -- it doesn't really tell you anything.</p> <p>5 I mean, if I was comparing across campaigns as 13:12:35</p> <p>6 an advertiser, I would be, like, saying, "Oh, well, which</p> <p>7 one is delivering the best cost conversion? Let's put</p> <p>8 more money there."</p> <p>9 The idea you'd be comparing and evaluating</p> <p>10 across campaigns like this just doesn't make sense. 13:12:50</p> <p>11 Q. BY MR. GRABER: Well, but let's stay on</p> <p>12 Exhibit 7. The ratio of impressions to audience size.</p> <p>13 Do you see those numbers there?</p> <p>14 A. Yes.</p> <p>15 Q. And that provides certain information; right? 13:13:03</p> <p>16 A. It provides the information that vast -- I mean,</p> <p>17 just about all advertisers on Facebook are not setting</p> <p>18 budgets which are anywhere close to them being ever</p> <p>19 plausibly able to hit a potential reach number in terms</p> <p>20 of their coverage. 13:13:30</p> <p>21 You know, I find it an incredibly informative</p> <p>22 exhibit.</p> <p>23 Q. So I want to make sure I understand you</p> <p>24 correctly. I mean, the reason that this is not useful to</p> <p>25 advertisers is because these numbers are very, very low; 13:13:40</p>

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1 right?		1 I was saying, well, you know, it's a hard
2 MR. ACOTT: Objection. Form.		2 hypothetical to think about. But the only way I could
3 THE WITNESS: So I think you're generalizing a		3 think of an advertiser ever having any motivation to do
4 bit. You said to me, is it possible that an advertiser		4 that could be if they had a large advertising budget and
5 would look at the percentage of people reached relative	13:13:58	5 they were interested to see: Well, we've reached so many 13:17:29
6 to potential reach after launching their campaign? I		6 people, how are we doing? Something like that.
7 said what they're going to see is what we see in		7 But that's a, sort of, very unique and
8 Exhibit 7. And, of course, it's going to vary across		8 specialized type of advertiser. And my point was that,
9 advertisers and campaigns.		9 you know, if you look at Exhibit 7, the class is not
10 And then if I am trying to evaluate how to	13:14:21	10 anywhere close to that. 13:17:48
11 allocate advertising dollars going forward, the		11 Q. BY MR. GRABER: How do you know that advertisers
12 difference between, say, hitting .5 versus .75 is just		12 don't use potential reach after running their campaigns
13 unmeaningful relative to a clearly informative metric		13 to determine the reach percentage out of the total
14 such as: What is my cost for conversion? What actually		14 audience?
15 am I paying to reach each of these people, you know, in		15 A. Well, to establish that -- you know, sounds -- 13:18:19
16 certain circumstances?		16 you know, first of all -- well, first of all, I was just
17 That is an informative metric. This is not		17 saying as to someone who studies digital advertising,
18 informative.		18 it's just incredibly implausible behavior. The idea that
19 Q. BY MR. GRABER: And it's not informative because		19 you would be tracking this metric, which is not
20 these numbers are so small; is that right?	13:15:02	20 automatically provided to you somewhere else and knowing 13:18:50
21 MS. DEELEY: Objection to form.		21 all the metrics provided by the dashboard, it's just
22 THE WITNESS: No. I think you're simplifying.		22 implausible.
23 The -- you said our firm -- our firm is going to		23 Now you're saying to me, how do I know that no
24 look at the percentage of reach. Now, the only type of		24 one does something implausible? Well, I'm not aware of
25 advertiser that could possibly be doing that is one that,	13:15:32	25 any survey evidence introduced by plaintiffs to suggest 13:19:09
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1 in some sense, is interested about how close to the		1 that this is widespread behavior.
2 threshold they got of being able to cover the market.		2 And -- and the evidence we do have from the
3 Now, I'm saying that if you look at the vast		3 named plaintiffs I think makes it clear how this type of
4 majority of advertisers, the advertising budgets are such		4 behavior just doesn't make sense for the majority of
5 that that's not going to happen, and it's not going to be	13:15:55	5 advertisers. 13:19:32
6 relevant for them.		6 Q. You mentioned surveys. Let's talk about that.
7 So it's not that these numbers -- you know, it's		7 Dr. Tucker, have you ever published an article
8 not -- I think the direct relationship you're suggesting,		8 regarding conjoint surveys?
9 that these numbers are small, therefore, they're		9 A. No. No, I haven't -- I haven't published a
10 irrelevant.	13:16:08	10 conjoint survey article. But, of course, I teach them. 13:20:19
11 Instead, advertisers' budgets are so small that		11 Q. And you're not a specialist in conjoint; right?
12 this kind of behavior you're suggesting just doesn't make		12 MR. ACOTT: Objection to form.
13 sense. That's the point I'm making.		13 THE WITNESS: So I am someone who teaches
14 And I should say advertisers' budgets relative		14 conjoint, thinks hard about its potential flaws, how to
15 to potential reach.	13:16:23	15 use it well. So I would say I am a specialist in terms 13:20:44
16 Q. BY MR. GRABER: So these numbers would not be		16 of thinking about conjoints and how to apply them.
17 useful to look at unless you had a budget sufficient to		17 Now, you know, I don't want to back away from
18 cover the entire audience reflected in potential reach?		18 their expertise because certainly, you know, it's
19 MR. ACOTT: Object to the form.		19 expertise which has been gained over running many
20 THE WITNESS: So I don't think that these	13:16:48	20 conjoint surveys myself and teaching many students over 13:21:05
21 numbers are useful to look at, just as a first matter,		21 time how to use this tool.
22 because there are so many more relevant ways to do it.		22 Q. BY MR. GRABER: Has anyone ever paid you to
23 You asked me if there was any plausible context		23 conduct a conjoint survey?
24 in which an advertiser could potentially look at the		24 MR. ACOTT: Object to the form.
25 percentage of actual reach to potential reach.	13:17:05	25 THE WITNESS: Candidly, many of my students have 13:21:28

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1 asked me to and I've refused because I don't want that 2 conflict of interest. 3 Q. BY MR. GRABER: So other than your students 4 who've asked you, has anyone ever -- set aside what your 5 students have asked you to do. Has anyone ever paid you      13:21:43 6 to conduct a conjoint survey? 7 MR. ACOTT: Same objection. 8 THE WITNESS: So no one has paid me. I have 9 received offers to do a conjoint survey in an area where 10 it was inappropriate and I said no.                                13:21:58 11 Q. BY MR. GRABER: Have you ever given any 12 presentations at any conferences specifically regarding 13 conjoint surveys? 14 A. I'm trying to think. Not that I recall. I 15 mean, obviously many of the conferences I attend present    13:22:42 16 conjoint studies. And I'm trying to recall if I've ever 17 asked to be -- you know, given a discussion or so on. 18 I've certainly sat on panels, but nothing -- I 19 have never presented a conjoint survey myself at a 20 conference.    13:22:58 21 Q. And you said you teach conjoint; right? 22 A. That's right. 23 Q. Okay. Is that the basis for your -- you contend 24 you're an expert in conjoint; is that right? 25 MR. ACOTT: Object to the form.                                        13:23:16	1 reliable results. 2 Q. And you're talking about the executives that you 3 teach through the executive program at MIT; right? 4 A. That is correct. 5 Q. Right.    13:25:20 6 And that's a two-day program; right? 7 A. Oh, no. No. Sorry. I misunderstood you. 8 So we have an executive MBA, and those are the 9 executives I'm thinking about. Because as part of their 10 class project, often they attempt conjoints.                        13:25:38 11 And then, you know, some of them have used 12 conjoints to make hundreds of thousands of dollars for 13 their companies. So, I mean, there's been some really 14 good results. 15 But, no, it's that. It's not the two-day                                13:25:50 16 program. I wouldn't try and teach the conjoint there. I 17 just mean I wouldn't teach it because it's, you know, 18 such an in-depth subject, and I have to cover a lot of 19 material at a high level for executives in that two-day 20 program.    13:26:10 21 Q. You teach conjoint in your pricing class; is 22 that right? 23 A. Yes, I do. 24 Q. That's where you teach it; right? 25 A. No, that's not so. To be clear, I teach it in                13:26:24
1 THE WITNESS: So I have a large degree of 2 expertise in conjoint. I -- you know, and I would hold 3 myself up as someone very well placed to think about it 4 as a methodology. 5 Q. BY MR. GRABER: You would be comfortable      13:23:37 6 designing your own survey and offering that as an expert 7 witness if it was a subject matter appropriate for 8 conjoint? 9 A. Yes. But I'm glad you added the caveat that it 10 would have to be a subject matter appropriate for      13:23:52 11 conjoint. 12 Q. Is the basis for your assertion that you have 13 expertise in conjoint the fact that you teach conjoint at 14 MIT? 15 A. It is both that I teach conjoint at MIT and I      13:24:10 16 have helped implement conjoints as part of my general 17 mentorship activities. 18 Q. What firms have you -- okay. What mentorship 19 activities are you talking about? 20 A. So I teach many senior executives at MIT. Often    13:24:34 21 conjoint is a tool that they are excited about. They 22 want to deploy it in their companies, and I help them -- 23 you know, because it's so easy to get a conjoint wrong or 24 to make it misleading, I honestly help them set it up so 25 it's less confusing and it's more likely to produce      13:25:05	1 my pricing class, 15818; my executive pricing class, 2 15726; and then my general management class, which is 3 15732. 4 Q. Let me see if I got it right. 5 So you teach it in your pricing class, 15818?                13:26:54 6 A. That's right. 7 Q. And then you teach it in your executive pricing 8 class, 15726; correct? 9 A. That's correct. 10 Q. And your general management class at 15732?        13:27:11 11 A. That's correct. 12 Q. Okay. And in each of these classes, you cover 13 conjoint in a substantive fashion; right? 14 A. Yes. 15 Q. Okay.    13:27:27 16 A. I mean, there's no point in teaching conjoint if 17 you don't get into the substance about how to practically 18 execute and do analytics. 19 Q. Okay. Do you teach it kind of the same way in 20 each of these classes?    13:27:43 21 MR. ACOTT: Object to the form. 22 THE WITNESS: No. 23 Q. BY MR. GRABER: Okay. How is it different? 24 A. Well, in pricing, we think about how to use 25 conjoint to both price a particular feature of a new      13:28:01

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1 product and also to potentially identify a useful 2 segmentation feature for purposes of price segmentation.		1 MR. ACOTT: Object to the form.	
3 Q. Okay. That's in your pricing class. How about 4 in the -- there's the general management class; right?		2 THE WITNESS: Are you asking me to 3 self-criticize as a teacher here? I -- you know, it's 4 because the MBAs -- because I designed the pricing module	
5 And then -- well, I'm getting the numbers mixed up. I 6 apologize, Dr. Tucker.	13:28:30	5 for the MBAs, I think there's more of me talking, quite 6 honestly, in that class.	13:31:56
7 A. So that is the 15732 class.		7 MR. GRABER: Yeah --	
8 Q. Yes.		8 THE WITNESS: Whereas in the executive MBA 9 class, I actually encourage them more to share their 10 experiences of using conjoint and how it's being useful.	13:32:11
9 A. And there I am teaching about how to use 10 conjoint to evaluate the fit of a product and set of 11 features with different segments of the population.	13:28:42	11 What are the flaws they see? How can it go wrong? And 12 so I'm more encouraging a conversation around the actual 13 practical use of conjoint at the firms.	
12 Q. And then in 15726 -- which class is that?		14 Now, I'm not -- it's different. I'm not sure 15 which one you would consider deeper.	13:32:28
13 A. That is the price -- executive pricing class. 14 And because it's more compressed, it's the same material 15 but I speak faster.	13:29:13	16 Q. BY MR. GRABER: Yeah, I think we're talking past 17 each other. I'm not trying to criticize your teaching or 18 how you select -- how you decide to teach conjoint in one 19 class versus another. What I'm really getting at here, 20 Dr. Tucker, is I'm trying to get a sense of whether --	13:32:44
16 Q. Okay.		21 let me back up.	
17 A. It's the same material as the full-time MBA 18 class, that is.		22 You testified that you offer three different 23 classes in which you teach conjoint; is that right?	
19 Q. Do you cover conjoint more quickly in one of 20 these classes -- strike that.	13:29:32	24 A. Yes.	
21 Do you cover conjoint at, sort of, just the 22 higher, more superficial level in one of these classes 23 versus the others, or do you go into, like, equal amounts 24 of depth in all of these classes?		25 Q. Okay. What I'm trying to understand,	13:33:00
25 MR. ACOTT: Object to the form.	13:29:52		
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1 THE WITNESS: So I think in all cases I talk 2 about: Well, why would you use a conjoint? I then -- 3 then typically what I've done is I've worked with a young 4 firm in start-up who once helped to set up a conjoint for 5 them.	13:30:14	1 Dr. Tucker, is whether you cover conjoint a lot in one 2 class and only a little bit in others or whether you 3 basically cover conjoint to the same extent in all three 4 of the classes. Does that make sense?	
6 I have the students beforehand take the 7 conjoint. I then demonstrate how I set up that conjoint. 8 And sometimes I just do an ad hoc one in class to show 9 how you would use a tool like Sawtooth to set one up.		5 A. Yes, it does.	13:33:19
10 And then I get the students -- I take the 11 students through a: What do these numbers mean? How do 12 you think about them? How are they produced?	13:30:33	6 Q. Okay.	
13 And then I get the students to use their own 14 conjoint survey to then think, "Well, what would I do?"		7 A. And I have a way of actually distinguishing, I 8 think, which is less about my teaching.	
15 And that's the case in both classes.	13:30:50	9 Q. Okay.	
16 But, of course, in pricing there's more of an 17 emphasis on using the utility values that come out of a 18 conjoint to convert them to an actual price. Whereas in 19 the general marketing course, we're taking more of a		10 A. In the pricing class, I get the students to do 11 an explicit homework on conjoint, and I explicitly 12 encourage them to design conjoints as part of their end 13 project.	13:33:30
20 perspective of: What should the product look like for 21 that second?	13:31:12	14 For the marketing management class, I say 15 there's no homework on conjoint, and I say if you want to 16 do a conjoint, they're really tricky to do, we're going 17 to have office hours together, and I'm going to have to 18 help you.	13:33:48
22 Q. BY MR. GRABER: You go into -- is it fair to say 23 that in all three of these classes, you go into equal 24 amounts of depth regarding conjoint but maybe just cover 25 different aspects of conjoint?	13:31:33	19 And so if you take an outcomes-orientated 20 approach, the marketing management class is designed to 21 allow my senior management students to be expert 22 consumers of conjoint and to understand what the numbers 23 mean and to ask the right questions. And of course I 24 will train them to do a conjoint. But, honestly, they're 25 making -- sorry, I shouldn't say this. They're very	13:34:07

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1 highly compensated individuals who are unlikely to be 2 running their own conjoint.		1 It's been many years. I know it's been many, many years 2 for many reasons.	
3 My pricing students on the other hand, my aim is 4 that they can run a conjoint at the end of the class, do 5 the analytics, work out how to use it. I think that's a 6 better way of sort of saying, you know, which one is 7 deeper.	13:34:39	3 I'm just conscious of the fact that there was 4 this brilliant switch as a teacher from me having to say, 5 "This is what a conjoint looks like, this is what the 6 data looks like," to being actually able to teach in real 7 time how to do a conjoint and how conjoint data is 8 produced.	13:38:09
8 Q. Okay. It sounds like you cover conjoint to the 9 same extent in all of these classes but maybe in 10 different ways?	13:35:00	9 Q. Do you remember when you started teaching it in 10 real time?	13:38:25
11 MR. ACOTT: Object to the form.		11 A. I'm really sorry, I don't.	
12 Q. BY MR. GRABER: How about I ask it this way: Do 13 you spend more time in -- in pricing on conjoint than you 14 do in the other two classes?		12 I'm trying to think. So, look, it -- I know 13 it -- the reason -- I know it's at least ten years. And 14 the reason I know it's at least ten years is that I	
15 A. So in the two pricing classes, I expect students 16 to spend more time on conjoint.	13:35:19	15 remember I had -- you know, an example, and I remember 16 being a junior female professor, and then one of my 17 students said something completely inappropriate, and I 18 just remember that feeling. And that was in real time. 19 And I know I was untenured, and I knew I felt vulnerable, 20 and I didn't know what to do.	13:38:53
17 The reason I'm hesitating about the timing is 18 that in unpandemic years, I would probably spend longer 19 talking about conjoint in the pricing class. But this 20 year, because we were remote, I made a lot of -- I was 21 like, you know, trying to do it all online, engaging, all 22 of these things. And I think it shifted a bit. And I 23 think probably this time we spent more on class time in 24 the management class, but that's not typical.	13:35:52	21 So it was certainly, I think, before 2012, when 22 I was tenured, but I can't pinpoint it. That's my 23 memory, if you see what I mean. I can't do it any better 24 than to say it was when I was untenured.	
25 So if you're looking for time, generally more	13:36:13	25 MR. ACOTT: Geoff, we've been going for a little	13:39:35
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1 time in pricing and certainly more time expected of the 2 students in non-pandemic times.		1 over an hour. Whenever you get to a good stopping point, 2 maybe we can take a break.	
3 Q. How long have you taught this pricing class?		3 MR. GRABER: Sure. Yeah, I think we're wrapped 4 up on this one. Yeah, let's go off the record.	
4 A. Since 2005.		5 THE VIDEOGRAPHER: We are now going off the 6 record. The time is 1:40 p.m. Eastern Daylight Time.	13:39:48
5 Q. And you've always covered conjoint in these 6 classes?	13:36:32	7 (Recess.)	
7 A. So, yes, I've always covered conjoint. I think 8 it's fair to say in the last decade I've been able to 9 cover it in more depth. Because pre-2010, it was just a 10 very expensive tool which wasn't -- they weren't really 11 tools for doing an accessible way for a student.	13:36:55	8 THE VIDEOGRAPHER: We are now back on the 9 record. The time is 2:18 p.m. Eastern Daylight Time.	
12 But since then, there's been an advent of easily 13 accessible cloud-based tools which allow any student to 14 do a conjoint. And so that allows me to cover it in more 15 depth.	13:37:15	10 Q. BY MR. GRABER: Welcome back, Dr. Tucker.	14:18:19
16 So I think previously, prior to those 17 cloud-based tools, you know, I was more covering it in a 18 theoretical level, like you employ an expensive firm to 19 do a conjoint for you. Now I can teach students how to 20 do it themselves.	13:37:31	11 So let me ask you a few more questions about the 12 conjoint issue and your history of teaching that. Let's 13 bring up the next document.	
21 Q. When did you start teaching how to do it?		14 MR. GRABER: So, Shireen, this is Document 2. I 15 guess this will be Exhibit 345.	14:18:44
22 A. So in all cases I've taught how to do it, sort 23 of in guiding people. But actually having a cloud-based 24 tool to allow the students to do it in real time and me 25 to set it up real time -- oh, I don't actually know.	13:37:49	16 (Exhibit 345, Screenshots, MIT Course Number 17 15.818, marked for identification electronically 18 by counsel.)	
		19 MR. GRABER: One second. Okay. I think it's on 20 there now.	14:18:59
		21 Q. Do you see the document that's been marked as 22 Exhibit 345?	
		23 A. I see it. I'm just trying to open it.	
		24 Q. Are you not able to pull it up?	
		25 A. So, yes, I can see the document. I'm having --	14:19:47

<p>1 I got a scary out of memory warning, so I'm just warning 2 you about that, but I can see it. 3 Q. Okay. This document should be three pages. Is 4 that what you're seeing? 5 A. Yes, I am. 14:20:01 6 Q. Okay. Does the first page appear to be the 7 first homepage for your pricing class as taught in spring 8 2010? 9 A. Yes. 10 Q. And the second page is the calendar. 14:20:21 11 Do you see that? 12 A. That is correct. 13 Q. And the third page reflects lecture notes for 14 these -- for this class; right? 15 A. That's right. 14:20:35 16 Q. Okay. Does this class generally remain the same 17 over the years that you've taught it? 18 A. Oh, no. 19 MR. ACOTT: Object to the form. 20 Q. BY MR. GRABER: Okay. How has it changed? 14:20:45 21 A. Oh, I would say -- so this is -- this class is 22 my -- I'm very passionate about this class. I update it 23 every year. This is a very early iteration of the class. 24 Q. Okay. And let's go to Document 3. 25 (Exhibit 346, Measuring Customer Reactions to 14:21:15</p>	<p>Page 90</p> <p>1 Q. And if you go to the second page. 2 A. Yes. 3 Q. Do you see the calendar? 4 A. Yes. 5 Q. And you see under session 5 it says, "Measuring 14:23:48 6 Customer Responses to Prices." 7 Do you see that? 8 A. That's right. 9 Q. So these lecture notes correspond to session 5 10 of your class; right? 14:23:58 11 MR. ACOTT: Object to the form. 12 THE WITNESS: Well, let's be clear. They 13 correspond to a lecture I gave back in 2010, yes, so they 14 certainly don't correlate to any recent iterations of the 15 class, but they do correlate to the structure of the 14:24:17 16 class as it existed in 2010. 17 Q. BY MR. GRABER: Okay. 18 Okay. So let's go to exhibit -- back to 19 Exhibit 346. 20 Do you see the reference to conjoint on the 14:24:44 21 first page? 22 A. Yes. 23 Q. And this reflects what you taught the class 24 about conjoint; right? 25 MR. ACOTT: Object to the form. 14:25:03</p>
<p>1 Prices, lecture notes, marked for identification 2 electronically by counsel.) 3 Q. BY MR. GRABER: Have you been able to pull up 4 the next document? It should be marked as Exhibit 346. 5 A. Let me bring that up. 14:21:52 6 Q. Okay. 7 A. I'm afraid I do not yet see it, but I'm keeping 8 on refreshing. 9 Sorry. It's just not refreshing yet. 10 Q. I think it's just come up for me. 14:22:17 11 A. Oh, there we are. 12 Q. All right. Are you able to see the document 13 that's been marked as Exhibit 346? 14 A. Yes. 15 Q. Do these appear to be lecture notes by you? 14:22:32 16 A. Yes. 17 Q. And these are lecture notes for one of the 18 classes that was taught in 2010; right? 19 A. So these are the lecture notes from 2010 of the 20 lecture entitled "Measuring Customer Reactions to 14:23:04 21 Prices." 22 Q. Just one second. 23 And if you could go -- I'm sorry. If you could 24 go back to Exhibit 345 for a moment, Dr. Tucker. 25 A. Yes. 14:23:39</p>	<p>Page 91</p> <p>1 THE WITNESS: So these are just the lecture 2 notes from the class in 2010. They certainly don't 3 reflect what I teach the class now about conjoint, and 4 they -- you know, I think if you were to go to them, 5 they -- the lecture notes themselves contain some -- I 14:25:22 6 guess some cliff notes about some of the things to be 7 weary about in terms of doing a conjoint, but, you know, 8 as I say, these are quite outdated materials. Very 9 outdated materials. 10 Q. BY MR. GRABER: Sure. These lecture notes run 14:25:45 11 nine pages; correct? 12 A. Yeah. The lecture notes run nine pages, because 13 as you can see, the majority of the material is 14 devoted -- well, the majority of the lecture notes are 15 actually reminding my students how to calculate the price 14:26:05 16 elasticity. So the bulk of the lecture notes are a 17 prompt on that, so that's certainly true. 18 You know, but, again, I would just say this 19 doesn't represent anything like any current version of 20 the class or what I actually teach in the class. These 14:26:25 21 are just lecture notes, cliff notes for the students to 22 remember. 23 Q. If you go to page 4, do you see where it says, 24 "Improving surveys by using conjoint analysis"?</p>

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<p>Page 94</p> <p>1 Q. And the section on conjoint runs from the bottom 2 of page 4 to the top of page 5; right? 3 A. So the section of these lecture notes dating 4 from an outdated version of the class in 2010, the cliff 5 notes for conjoint are focused on some of the advantages 14:26:52 6 and disadvantages of conjoint, and the bulk of the 7 lecture notes are devoted to the question of how to 8 appropriately calculate the price elasticity. 9 Q. Most of this lecture doesn't deal with conjoint; 10 correct? Is that fair? 14:27:11 11 MR. ACOTT: Object to the form. 12 THE WITNESS: No, that's not correct, because 13 you're now talking about a lecture as opposed to lecture 14 notes. The majority of the lecture notes are devoted to 15 the question of how to calculate a price elasticity. 14:27:23 16 These lecture notes have some cliff notes about conjoint. 17 But, again, I want to be clear. This is not 18 representative of whatever the lecture was like in 2010, 19 because lecture notes are not intended to do that, and 20 they're also certainly not representative of any of the 14:27:47 21 more recent iterations of the class. 22 Q. BY MR. GRABER: Most of the lecture notes are 23 not devoted to conjoint; is that right? 24 MR. ACOTT: Object to the form. 25 THE WITNESS: So as I said before, in the early 14:28:04</p>	<p>Page 96</p> <p>1 Obviously, we've moved to a world of analytics and away 2 from cases. I certainly know that before 2012, because 3 of my memory of this unfortunate incident with a male 4 student saying something very inappropriate in class, 5 that I was definitely demonstrating conjoint and conjoint 14:30:03 6 estimates in class prior to 2012. 7 I can't tell you, though, if I was making that 8 demonstration in 2010 on the basis of those lecture 9 notes. What I do know now is that if you were to sit in 10 on most -- on, oh, iterations of my class for now many 14:30:23 11 years, there is a lot of material devoted to the question 12 of how actually to conduct a conjoint, a demonstration of 13 conjoint, an analysis of conjoint data, all of which, 14 that I think looking at the lecture notes, you wouldn't 15 get. 14:30:45 16 Q. Well, how many years back has it been that 17 you've started going into more depth regarding conjoint 18 in your pricing class? 19 MR. ACOTT: Object to the form. 20 THE WITNESS: So as I say, I can't say that in 14:30:58 21 2010 -- I'm not sure how much depth I was going into on 22 the basis of these lecture notes, but what is clear is 23 that I was devoting one lecture towards analytical 24 methods. Now, that has changed, and, of course, I'm now 25 devoting much more time to analytic methods. 14:31:18</p>
<p>Page 95</p> <p>1 years of the pricing class, I taught a far more 2 traditional version of pricing where we had a lot of -- 3 you see cases. You see a far more traditional MBA course 4 structure. These lecture notes you found on the internet 5 reflect that older structure. Since these lecture notes 14:28:26 6 were shared to the world by MIT, I have spent many years 7 updating these lectures to be contemporary and really 8 focused on training my students how to practically do 9 pricing analytics. 10 All I just want to say is that these lecture 14:28:47 11 notes -- you know, we can point to them. They're not 12 representative of the lecture, and they're certainly not 13 representative of what I teach or what I taught, you 14 know, over the course of many years. 15 Q. BY MR. GRABER: Are you saying that you cover 14:29:00 16 conjoint in far more depth now than you did in 2010 in 17 your pricing class? 18 MR. ACOTT: Object to the form. 19 THE WITNESS: Yes. I thought I'd already said 20 that, and if it's not clear, yes, definitively. 14:29:14 21 Q. BY MR. GRABER: Okay. And did that greater 22 focus on conjoint start shortly after 2010? 23 A. So -- now, looking at the -- if you look at the 24 structure of this class or the lecture as it was in 2010, 25 as I say, it's still got a lot of cases in the class. 14:29:45</p>	<p>Page 97</p> <p>1 Now, in terms of the shift to demonstrating and 2 analyzing conjoint data in class, I certainly know I was 3 doing it before tenure. Whether that was really the 2011 4 iteration or the 2012 iteration of the class, I'm not 5 sure. I just know that it was before tenure. 14:31:42 6 Q. BY MR. GRABER: Okay. I'm sorry, Dr. Tucker. I 7 just want to make sure I understand, so you're saying 8 sometime before you obtained tenure, you began teaching 9 conjoint in greater depth; is that right? 10 MR. ACOTT: Object to the form. 14:32:02 11 THE WITNESS: So sometime before -- so, you 12 know, first of all, let's be clear, this is an iterative 13 process. Every year my class, I like to think, has 14 improved, become more analytical and all of these things. 15 Now, you've presented lecture notes from a 14:32:21 16 lecture I gave 11 years ago. I'm not sure what I 17 actually did in class in these -- 11 years ago in terms 18 of devoting of time. You know, certainly when I review 19 the lecture notes, it does not surprise me that I devote 20 a lot of space in them to the question of elasticities, 14:32:44 21 because that's obviously an important driver of how to do 22 pricing. 23 Now -- so every -- so if you think about the 24 incremental improvements and how I started to teach 25 pricing -- started to teach conjoint in pricing, you 14:33:03</p>

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1 know, we started off using a tool -- one of the first 2 cloud-based tools, and that had some advantages and 3 disadvantages.		1 A. I'm just bringing it up. 2 And I -- here we are. It's just coming up. 3 Yes.	
4 I would actually say on the whole it was 5 inferior to the tool that I'm using now. I remember 6 demonstrating this tool and having students discuss it 7 prior to tenure, because as I say, this male student made 8 an inappropriate comment during the time I was presenting 9 the results, and I wish I could go back in time and have 10 handled that inappropriate comment differently.	14:33:20	4 Q. Does this appear to be a syllabus for your 5 pricing class?	14:37:34
11 Since then, tools have been introduced which 12 allow more of a cloud-based discussion, such as discovery 13 sawtooth, and I have been demonstrating that tool in 14 class, how to use it, how to interpret all the numbers 15 that come out of it, and, you know, that's been a 16 constant iteration improvement over the last 11 years.	14:34:01	6 A. Yes, it does. 7 Q. And if you go to page 3, do you see "Class 8 Schedule"? 9 A. That is correct.	
17 Q. BY MR. GRABER: Did you ever come to a period of 18 time where you spent more than one session of your class 19 on conjoint?		10 Q. And do you see session 6, "Pre-launch Pricing 11 Data"? 12 Do you see that?	14:37:52
20 MR. ACOTT: Object to the form.	14:34:23	13 A. Yes. 14 Q. And it says, "Monadic surveys; conjoint."	
21 THE WITNESS: So currently I use two sessions 22 for my class devoted to conjoint. Or rather, to be 23 clear, there is one class where I discuss what a monadic 24 survey is and then how it could be -- then I go to 25 conjoint and explain what a conjoint can do, and then	14:34:45	15 Do you see that?	14:38:05
	Page 99	16 A. Yes. I think I just described that session. 17 Q. It doesn't refer to conjoint anywhere else in 18 this, does it? 19 A. So it doesn't refer to conjoint, but you asked 20 me if I -- that's because it's taking place in what is 21 now session 9, the segmentation class, where I discuss 22 how to use conjoint for segmentation. That was the other 23 class I referred to.	
		24 Q. Great. Okay. Is this version of your class 25 similar to what you teach today?	14:38:39
1 separately I then go on in a different class to talk 2 about how to use conjoint to do ideal forms of price 3 segmentation.			Page 101
4 Q. BY MR. GRABER: When did you start devoting two 5 classes to conjoint?	14:35:08	1 A. No. 2 MR. ACOTT: Object to the form.	
6 MR. ACOTT: Object to the form.		3 Q. BY MR. GRABER: No?	
7 THE WITNESS: Well, I should be clear that it 8 was around about -- I can't remember if it was 2013 or 9 2014. No, it wasn't 2014. I taught a 24-session version 10 of this class, and at that point, certainly the amount of 11 conjoint shifted. I then started teaching a 12-unit -- 12 sort of 12-session version of this class, and at that 13 point it would be when I started teaching the two 14 sessions devoted to conjoint. So that would be at least 15 six years ago, by my rough math.	14:35:37	4 A. So, no, this class is not similar. Do you 5 remember I just said for one year I taught a 24-session 6 version of the class, and then I decided -- well, I don't 7 want to go into my decision making, but I've -- I teach 8 an awful lot relative to most MIT professors, and after a 9 discussion with the deans, it was decided that I would 10 teach -- they really wanted me to teach pricing, because 11 it's such a popular class, but we worked out a compromise 12 where I teach a 12-session version of this class.	14:38:47
16 Q. BY MR. GRABER: Okay. Let's take a look at a 17 2014 version of your pricing class, if we could pull that 18 up.	14:36:07	13 And if you want to, sort of, think about what 14 the conceptual difference is, there's no Filepicker case 15 there's no current case, and, basically, a lot -- I mean, 16 I could tell you which ones still exist, but I think 17 probably which is what's more pertinent for your question 18 is it still has this -- within these 12 classes -- we've 19 got 12 classes. One of them is still about monadics and 20 conjoints, and then the -- there is -- the segmentation 21 class, again, is devoted to the question of how to use 22 conjoint to do better product-based price segmentation.	14:39:17
19 (Exhibit 347, MIT Sloan School of Management 20 15:818 Pricing, marked for identification 21 electronically by counsel.)	14:36:36	23 Q. BY MR. GRABER: Thank you. That's helpful, 24 Dr. Tucker.	14:39:35
22 Q. BY MR. GRABER: So we should be pulling up a new 23 document now.		25 Dr. Tucker, you don't have a computer science	14:39:55
24 Okay. So I believe Exhibit 347 has been pulled 25 up.	14:37:03		14:40:22

<p>1 degree, do you?</p> <p>2 A. No, I don't have a computer science degree.</p> <p>3 Q. And are you proficient in writing computer code?</p> <p>4 A. Yes.</p> <p>5 Q. Okay. What computer code are you proficient in? 14:40:40</p> <p>6 A. So as an economist -- well, you know, yeah, so I</p> <p>7 am -- I'm very skilled at writing code, especially for</p> <p>8 the kind of statistical econometric applications that</p> <p>9 professors use, so that would be things like R, Stata,</p> <p>10 that kind of coding. 14:41:10</p> <p>11 I can also read -- you know, I can read code,</p> <p>12 because code is code. I've certainly worked with another</p> <p>13 coauthor with Java code. I've worked with various</p> <p>14 students who've been using Python, and I've read their</p> <p>15 code, but would I ask -- is it efficient to ask me to 14:41:30</p> <p>16 write Java code or Python code? No. I mean, I can look</p> <p>17 at it, understand what it's trying to do, but I'm not --</p> <p>18 you know, I wouldn't employ me to be a Python coder. I</p> <p>19 think better uses of my time is spent on the economics of</p> <p>20 digitization. 14:41:51</p> <p>21 Q. You haven't published anything on auction</p> <p>22 theory; is that right?</p> <p>23 MR. ACOTT: Object to the form.</p> <p>24 THE WITNESS: I've certainly -- I have published</p> <p>25 papers about outcomes related to the Facebook auction, 14:42:05</p>	<p>Page 102</p> <p>1 A. Yes --</p> <p>2 MR. ACOTT: Object to the form.</p> <p>3 THE WITNESS: Well, yes. We were studying a</p> <p>4 particular aspect of -- we were studying what the ad</p> <p>5 algorithm -- what the auction algorithm does when 14:44:37</p> <p>6 advertisers don't specify a preference over gender, so we</p> <p>7 were looking at that input into the Facebook ad auction</p> <p>8 and the outcome, which resulted from a process of</p> <p>9 crowding out from other bids in that auction. So it was</p> <p>10 really about how different bids interact during the 14:45:01</p> <p>11 Facebook auction process.</p> <p>12 Q. BY MR. GRABER: But you didn't actually analyze</p> <p>13 the Facebook online auction system itself and how it</p> <p>14 works; right?</p> <p>15 MR. ACOTT: Object to the form. 14:45:18</p> <p>16 THE WITNESS: That's precisely what the paper is</p> <p>17 about. It was about how some advertisers' bids into the</p> <p>18 auction affects outcomes in a way which can lead to</p> <p>19 situations where women see different types of ads from</p> <p>20 men. 14:45:43</p> <p>21 Q. BY MR. GRABER: Did you have access to</p> <p>22 Facebook's auction system and how the algorithm</p> <p>23 calculates -- how the algorithm is executed within the</p> <p>24 online auction system?</p> <p>25 MR. ACOTT: Object to the form. 14:45:58</p>
<p>1 but I have not written a purely theoretical paper on</p> <p>2 auctions. I am an empiricist, not a theorist.</p> <p>3 Q. BY MR. GRABER: Have you ever had anything</p> <p>4 published that dealt specifically with auctions of any</p> <p>5 kind? 14:42:32</p> <p>6 A. Yes. That's what I just said. I've had a paper</p> <p>7 published looking at outcomes from the Facebook ad</p> <p>8 auction.</p> <p>9 Q. Okay. And what was the name of that</p> <p>10 publication? 14:42:45</p> <p>11 A. You can see it on my CV. I'll just bring my CV</p> <p>12 up. I'm very sorry, but Exhibit Share is so slow for</p> <p>13 some reason.</p> <p>14 So if you have my CV up and you look at entry</p> <p>15 number 37, "Algorithmic bias? An Empirical Study into 14:43:13</p> <p>16 Apparent Gender-Based Discrimination in the Display of</p> <p>17 STEM Ads," that paper is devoted to understanding how the</p> <p>18 cost of minimizing effects -- or the cost minimization</p> <p>19 optimization teams of the Facebook auction lead to</p> <p>20 certain outcomes. 14:43:39</p> <p>21 Q. And that's Algorithmic Bias?</p> <p>22 A. Question mark, yes.</p> <p>23 Q. But you didn't study the actual calculations</p> <p>24 that went into the Facebook auction in that report, did</p> <p>25 you? 14:44:26</p>	<p>Page 103</p> <p>1 THE WITNESS: So that's a good question. So</p> <p>2 what we did in that paper was we ran 190 different</p> <p>3 campaigns on Facebook on behalf of a wonderful nonprofit</p> <p>4 that was trying to promote careers in STEM, and then we</p> <p>5 studied the outcomes of the auction. 14:46:16</p> <p>6 Now, I just realized that if you're looking for</p> <p>7 a paper which is even more about the auction system,</p> <p>8 then -- I mean, that one's really about the auction</p> <p>9 system, but you said which studies the mechanisms, and at</p> <p>10 that point, I would point you to my paper on "Do Computer 14:46:37</p> <p>11 Algorithms Prefer Headless Women," which is devoted to</p> <p>12 the question of how the learning process within a</p> <p>13 Facebook ad auction can lead strange pieces of content to</p> <p>14 be prioritized, potentially.</p> <p>15 Q. BY MR. GRABER: What's the name of that article? 14:47:04</p> <p>16 A. It is called "Do Computer Algorithms prefer</p> <p>17 Headless Women?"</p> <p>18 Q. Well, let's stick with this article here.</p> <p>19 You're referring to algorithmic bias; right?</p> <p>20 A. That's correct, yes. 14:47:23</p> <p>21 Q. Okay. And just going back to my question: You</p> <p>22 didn't actually analyze the Facebook online auction</p> <p>23 system itself and how it worked; right?</p> <p>24 MR. ACOTT: Object to the form.</p> <p>25 THE WITNESS: Well, that was the point of the 14:47:42</p>

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<p>1 paper. What we said is we documented this pattern where 2 women saw a different selection of ads from men, and then 3 we went back to the Facebook ad auction to try and back 4 out why it happened.</p> <p>5 Q. BY MR. GRABER: Yeah, but the actual 14:48:03 6 calculations of the auction were unknown to you; right?</p> <p>7 MR. ACOTT: Object to the form.</p> <p>8 THE WITNESS: So at that time -- I'm trying to 9 remember if Facebook -- so at that time, we had 10 information on estimated bids in the auction, and we had 14:48:28 11 data on outcomes, and so that's what we were studying.</p> <p>12 Now, of course, Facebook treats as -- and 13 appropriately treats as highly confidential questions of 14 precisely how it does its ad quality scoring, so, no, of 15 course we didn't have access to that, but certainly we 14:48:52 16 were studying outcomes from the auction system.</p> <p>17 Q. BY MR. GRABER: Well, the auction system itself 18 and how it was calculated is a black box to you; right?</p> <p>19 MR. ACOTT: Object to the form.</p> <p>20 THE WITNESS: So the -- some parts of the 14:49:07 21 algorithm are intentionally not made public. As an 22 advertiser, you're told, for example, that you need to 23 have highly relevant ads, that they shouldn't be spammy, 24 and all these things. Now, you're not told exactly how 25 the algorithm's going to analyze your ads and make that 14:49:34</p>	<p>Page 106</p> <p>1 grids. It's named traditionally -- I hope I get it 2 right -- the VCG auction. It's certainly somewhere in 3 your expert reports, but think of it as a generalized 4 second price auction, which allows advertisers to bid in 5 different slots. 14:51:51</p> <p>6 Q. BY MR. GRABER: Have you ever written code to 7 design an auction simulation?</p> <p>8 MR. ACOTT: Object to the form.</p> <p>9 THE WITNESS: Sorry. I'm just trying to -- I 10 can't recall doing so. I'm only hesitating because, you 14:52:37 11 know, I have at the top of my mind, of course, my 12 published papers. I don't -- you know, there's always a 13 potential that there's a -- you know, a long-neglected 14 project that I've forgotten about, but I think you can 15 say that in none of my published papers have I written an 14:53:02 16 auction simulation, because, you know, ultimately, I'm an 17 empiricist. I like to study exactly how things behave 18 and looked at observed outcomes.</p> <p>19 Q. BY MR. GRABER: So you have never written code 20 to develop an auction simulation; right? 14:53:27</p> <p>21 MR. ACOTT: Same objection.</p> <p>22 THE WITNESS: So the answer would be: To the 23 best of my knowledge, I have never written that code, 24 because I'm an empiricist, and it sounds like you're 25 asking about a purely theoretical simulation exercise, 14:53:54</p>
<p>Page 107</p> <p>1 decision, because Facebook wants to prevent gamesmanship, 2 so, no, we didn't have access to, say, the precise way 3 that ad quality scores were calculated, for example, but 4 what we did have was we did have our own bidding data and 5 bidding data based on typical advertising behavior in 14:49:53 6 that auction.</p> <p>7 Q. BY MR. GRABER: But you didn't have the actual 8 calculation, for example, of the quality score and the 9 bids of other advertisers that the advertising auction 10 algorithm used; right? 14:50:11</p> <p>11 MR. ACOTT: Object to the form.</p> <p>12 THE WITNESS: So I did not have access to 13 underlying Facebook code uploading the algorithm, and 14 what I was able to observe in that paper was the outcomes 15 of the code, and in doing so, of course, it involved a 14:50:29 16 lot of study of what actually was going in to what you 17 refer to as the black box.</p> <p>18 Q. BY MR. GRABER: Have you ever designed a -- 19 well, what kind of auction does -- does Facebook use?</p> <p>20 MR. ACOTT: Object to the form. 14:50:56</p> <p>21 THE WITNESS: So Facebook uses, you know, a 22 special -- you know, so it's improving over time, and I 23 want to say that it's highly specialized, but it's what 24 is commonly known as a generalized second price auction, 25 which allows the auctioneer to auction off multiple 14:51:23</p>	<p>Page 108</p> <p>1 and I certainly haven't done that. My only hesitation is 2 if back in the past there's some forgotten structural 3 modeling project which I've forgotten about, but I 4 certainly haven't published any -- any theoretical 5 simulation of auctions. 14:54:13</p> <p>6 Q. BY MR. GRABER: You don't teach any classes 7 specifically on auction theory; right?</p> <p>8 A. So, no. I mean, obviously, like every 9 economist, it was a mainstay of my graduate Ph.D. 10 education, thinking about auction theory, and I was lucky 14:54:38 11 to have Susan Athey, who's one of the foremost auction 12 economists in the world as my advisor, but, no, I haven't 13 personally taught action theory in the classroom, to the 14 best of my recollection.</p> <p>15 Q. Well, Dr. Tucker, you've testified several times 14:54:59 16 for Facebook; right?</p> <p>17 MR. ACOTT: Objection to form.</p> <p>18 THE WITNESS: So I have been asked by Facebook 19 to offer an expert opinion in several matters, yes.</p> <p>20 Q. BY MR. GRABER: This is the fifth lawsuit in 14:55:17 21 which you've offered an opinion on behalf of Facebook; is 22 that right?</p> <p>23 MR. ACOTT: Object to the form.</p> <p>24 THE WITNESS: Yes, that sounds right.</p> <p>25 Q. BY MR. GRABER: Now, you testified on behalf of 14:55:37</p>

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1 Facebook in a case entitled Campbell versus Facebook; is 2 that right?	1 A. So in Campbell -- 2 MR. ACOTT: Object to the form.
3 MR. ACOTT: Object to the form.	3 THE WITNESS: -- I had a support team from AG.
4 THE WITNESS: So, again, I was offered to -- I 5 was offered -- I was asked to offer an expert opinion in      14:55:53	4 In Fraley, I didn't have a support team, and I 5 think for the cases after Campbell, I would have had a      14:58:46 6 support team from Analysis Group.
6 the Campbell matter, yes, by Facebook.	7 Q. BY MR. GRABER: Staying with the Campbell case, 8 how much money in total did you earn from the hours 9 billed by your support team?
7 Q. BY MR. GRABER: And you were asked to testify in 8 the Atkins versus Facebook case; right?	10 MR. ACOTT: Object to the form.                          14:59:02
9 A. Yes. That's right --	11 THE WITNESS: I'm really sorry. I couldn't tell 12 you.
10 MR. ACOTT: Object to the form.                          14:56:07	13 Q. BY MR. GRABER: Would you say it's over 50,000?
11 THE WITNESS: -- by Facebook.	14 A. I just don't know. I mean, it would be in the 15 tens of thousands probably, but I don't know. I really      14:59:17 16 just don't know.
12 Q. BY MR. GRABER: And you were asked to testify on 13 behalf of Facebook in a case titled Fraley versus 14 Facebook; is that right?	17 Q. Let's talk about the Fraley case. How much 18 money did you earn in total on the Fraley case?
15 MR. ACOTT: Object to the form.                          14:56:17	19 MR. ACOTT: Object to the form.
16 THE WITNESS: Yes. And I should just clarify, 17 I -- in each case, where you say testified on behalf of, 18 I was asked by Facebook to offer an opinion -- expert 19 opinion, and, yes, Facebook asked me to offer an expert 20 opinion in the Fraley case.                          14:56:34	20 THE WITNESS: So in the Fraley case I, again,      14:59:44 21 would have billed around 100 hours, and given my billing 22 rate, that would be around \$100,000.
21 Q. BY MR. GRABER: And Facebook asked you to offer 22 an expert opinion in the Integrity Messages case; right?	23 Q. BY MR. GRABER: And you had no support team on 24 Fraley; right?
23 MR. ACOTT: Object to the form.	25 A. No, I didn't.                                  15:00:00
24 THE WITNESS: So, yes, I was asked for an expert 25 opinion. I think it was called Integrity Message Boards      14:56:49	
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1 case.	1 Q. Okay. How about the Atkins case? How much 2 money did you earn in total on the Atkins case?
2 Q. BY MR. GRABER: Thank you.	3 MR. ACOTT: Object to the form.
3 Let's walk through each of these. Dr. Tucker, 4 how much money did you earn in total on the Campbell 5 matter?    14:57:11	4 THE WITNESS: I'm really sorry. My estimate's 5 going to be exactly the same. You know, typically I      15:00:19 6 spend about 100 hours on a case. That's obviously an 7 estimate. Times it by my billing rate, and then I just 8 have no idea at this distance how much money I may have 9 got as a proportion of AG's billing, so I just wouldn't 10 know beyond saying I would have billed directly around      15:00:38 11 \$100,000.
6 MR. ACOTT: Object to the form.	12 Q. BY MR. GRABER: You have no memory at all of how 13 much money you earned through your support staff on the 14 Atkins case?
7 THE WITNESS: Gosh, that's going back a bit. I 8 would estimate -- and this is very much an estimate -- 9 that I usually spend about 100 hours on a case, and given 10 my billing rate, it would probably be around \$100,000,      14:57:34	15 MR. ACOTT: Object to the form.                          15:00:51
11 but I couldn't say precisely.	16 THE WITNESS: I'm really sorry. I couldn't tell 17 you, no.
12 Q. BY MR. GRABER: Did you do that work in 13 affiliation with the Analysis Group?	18 Q. BY MR. GRABER: You worked on that case less 19 than two years ago; right?
14 MR. ACOTT: Object to the form.	20 MR. ACOTT: Object to the form.                          15:01:10
15 THE WITNESS: So for the Campbell matter, my      14:57:54	21 THE WITNESS: Yes, that's right.
16 memory is that I had a support team at the Analysis Group 17 for that matter.	22 Q. BY MR. GRABER: Do you think you made something 23 in the tens of thousands through the efforts of your 24 support staff at Analysis Group?
18 Q. BY MR. GRABER: And part of your compensation is 19 based on the hours billed by your support team; right?	25 MR. ACOTT: Same objection.                          15:01:25
20 MR. ACOTT: Object to the form.                          14:58:11	
21 THE WITNESS: So I receive a proportion of 22 Analysis Group's billings in a matter where they're my 23 support team.	
24 Q. BY MR. GRABER: Did you have a support team in 25 Campbell?    14:58:34	

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<p>1       THE WITNESS: Again, I can only say that I would      2 expect in a case like this for it to have been in --      3 somewhere in the tens of thousands, but I really have no      4 memory of that specific case. I'm sorry.</p> <p>5       Q. BY MR. GRABER: How about -- let's talk about      15:01:53      6 Integrity Message Boards. That case is still going on;      7 right?</p> <p>8       MR. ACOTT: Object to the form.</p> <p>9       THE WITNESS: So I've submitted an expert      10 report, and I've given deposition testimony. You      15:02:12      11 probably know better than me whether it's still going on.      12 I just know what I've done so far.</p> <p>13       Q. BY MR. GRABER: Well, you testified earlier that      14 you just recently testified in that case; is that right?</p> <p>15       A. Yes, that's right. And I haven't heard of any      15:02:26      16 outcome from that case, so I assume it's still going on.      17 I just don't want to speak to something I'm not quite      18 sure about.</p> <p>19       Q. Okay. And how much money have you made in      20 connection with the Integrity Message Boards case?      15:02:39</p> <p>21       MR. ACOTT: Object to the form.</p> <p>22       THE WITNESS: So in the Integrity Message      23 case -- sorry -- Integrity Message Boards case, my answer      24 would be similar, in that typically I bill about 100      25 hours. My billing rate for that case was 1250, and so      15:03:02</p>	<p>1       MR. ACOTT: Object to the form.</p> <p>2       THE WITNESS: I absolutely -- I really don't      3 know.</p> <p>4       Q. BY MR. GRABER: You've also testified for      5 Facebook before the Australian Competition and Consumer      15:04:54      6 Commission; right?</p> <p>7       MR. ACOTT: Object to the form.</p> <p>8       THE WITNESS: So I just should clarify: I      9 didn't testify in the sense that we've been using testify      10 so far. Instead, what Facebook asked me to do was to      15:05:10      11 update a paper I'd already written and had published      12 about -- is an update to a competitive advantage, and I      13 updated that paper and submitted it as part of the      14 platform's inquiry that the ACCC was doing, and I also      15 gave a short presentation on the topic of that paper to      15:05:33      16 economists at the Australia Competition Commission.</p> <p>17       Q. Were you compensated by Facebook with respect to      18 your submission and testimony before the ACCC?</p> <p>19       MR. ACOTT: Object to the form.</p> <p>20       THE WITNESS: So, yes, Facebook covered the cost      15:05:56      21 of my hours to prepare the report. I do just want to      22 clarify it wasn't testimony in the sense that we would      23 use it in a legal context.</p> <p>24       Q. BY MR. GRABER: Well, by testimony I mean a live      25 verbal presentation to the ACCC, so you did provide that      15:06:13</p>
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<p>1 that would, you know, be slightly over \$100,000.</p> <p>2       Q. BY MR. GRABER: And how much money did you earn      3 in Integrity Message Boards in connection with the work      4 done by your support staff at Analysis Group?</p> <p>5       MR. ACOTT: Object to the form.      15:03:22</p> <p>6       THE WITNESS: So, again, I'm just -- I really      7 don't know, but it would be, I imagine, in the tens of      8 thousands of dollars again, but I really have no idea.</p> <p>9       Q. BY MR. GRABER: How many hours have you billed      10 on this matter?      15:03:42</p> <p>11       A. I actually don't -- I really don't know, and so      12 it feels like it's probably going to work out to about      13 100 hours, or maybe a little more, and so the similar      14 answer would be somewhere -- a little over 100 hours      15 times my billing rate of \$1250.      15:04:06</p> <p>16       Q. And in this matter, you will obtain compensation      17 based also on the work of your support staff at Analysis      18 Group; right?</p> <p>19       A. That's right.</p> <p>20       MR. ACOTT: Objection.      15:04:24</p> <p>21       THE WITNESS: I apologize, and, yes, that's      22 correct.</p> <p>23       Q. BY MR. GRABER: And you -- do you know how much      24 the other folks at Analysis Group have billed, the      25 support staff at Analysis Group?      15:04:42</p>	<p>1 type of a presentation; right?</p> <p>2       MR. ACOTT: Object to the form.</p> <p>3       THE WITNESS: So, no, it was a -- very much an      4 educational tutorial for their economists, so it wasn't,      5 you know, oriented toward a Court or lawyers or anything      15:06:27      6 like that. It was trying to educate the economists about      7 something we call the programmatic advertising ecosystem.</p> <p>8       Q. BY MR. GRABER: So were you compensated in      9 connection with your submission and presentation to the      10 ACCC?      15:06:47</p> <p>11       MR. ACOTT: Object to the form.</p> <p>12       THE WITNESS: Yes, I was.</p> <p>13       Q. BY MR. GRABER: And how much did Facebook      14 compensate you in connection with your work related to      15 the ACCC?      15:06:55</p> <p>16       MR. ACOTT: Same objection.</p> <p>17       THE WITNESS: So I don't know the precise number      18 of hours I worked. That would be probably less than the      19 report, so my guess would be something under 70 hours,      20 but I just don't know. It was less than the report, I      15:07:20      21 know that, in terms of number of hours I worked.</p> <p>22       Q. BY MR. GRABER: Was it your same typical billing      23 rate of 1,000 to \$1,200 an hour?</p> <p>24       A. So, yes, it would be a similar billing -- I use      25 the same billing rate for everything. It just changes      15:07:35</p>

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<p>1 sometimes over the years.</p> <p>2 Q. And according to the ACCC, Facebook engaged you 3 to prepare a submission on the extent to which large 4 amounts of data can pose a competitive advantage. Does 5 that sound right? 15:07:54</p> <p>6 MR. ACOTT: Object to the form.</p> <p>7 THE WITNESS: Yes. As I said, I'd written an 8 academic paper on this topic, and Facebook asked me to 9 update it with more Australia examples in a way which was 10 relevant to people thinking about Australia. 15:08:06</p> <p>11 Q. BY MR. GRABER: According to the ACCC, you 12 argued that the amount of data an entity has is not 13 inherently valuable. Does that sound right?</p> <p>14 MR. ACOTT: Same objection.</p> <p>15 THE WITNESS: So I don't know what you're 16 quoting from. What I said was that data is not a barrier 17 to entry, and, of course, is value produced by data, but 18 a lot of the value comes from expectation and encoding 19 and algorithms and all of these things, so that's what I 20 said. I certainly -- certainly it is my opinion that 15:08:46 21 data, at least in the specific context of online 22 advertising we're thinking about, was not their barrier 23 to entry.</p> <p>24 Q. BY MR. GRABER: The ACCC rejected your argument; 25 right? 15:09:02</p>	<p>1 MR. ACOTT: Same objection.</p> <p>2 THE WITNESS: So if you remember, in there, you 3 know, I was saying because data is ubiquitous, because we 4 all have a broad digital footprint, data is not a barrier 5 to entry, and we have lots of examples of firms that were 15:10:52 6 growing without having core sources of data. Now, you 7 know, the only disagreement I can recall at this distance 8 was that one of the economists said, "Oh, but what 9 happens if I have an emergency -- plumbing emergency and 10 I have to use Google and find a plumber? Then only 15:11:13 11 Google knows, right? That's unique?" And I said, "Yes, 12 that's unique."</p> <p>13 And I actually thought that was a useful 14 example, and I've used it since in my published academic 15 work, so that was the main disagreement I recall in that 15:11:26 16 conversation. Otherwise, I found it a very useful 17 discussion. I hope they did, too.</p> <p>18 Q. BY MR. GRABER: Well, didn't they disagree with 19 your assertion that Facebook obtains little competitive 20 advantage as a result of the data that it holds? 15:11:42</p> <p>21 MR. ACOTT: Object to form.</p> <p>22 THE WITNESS: So I don't know what you're 23 actually looking at here. I think I've given you an 24 example of where they said that, "Oh, what about this 25 context where data could potentially be unique and, 15:12:03</p>
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<p>1 MR. ACOTT: Object to the form.</p> <p>2 THE WITNESS: So I don't know why you would say 3 that. I think -- yeah, so, no, I'm actually -- you know, 4 the ACCC, the economists, listened, and, you know, I 5 certainly think I provided some useful information about 15:09:29 6 how to think of it from an economics point of view. The 7 ACCC did decide to do -- you know, for example, made 8 decisions regarding payment for news, but I'm not sure 9 what that has to do with my opinions.</p> <p>10 Q. BY MR. GRABER: They did disagree with your 11 argument; right? 15:09:54</p> <p>12 MR. ACOTT: Object to the form.</p> <p>13 THE WITNESS: So it looks like you're looking at 14 a document, which I can't see, and, you know, so my 15 memory of the conversation was of one which was robust 15:10:09 16 and constructive and useful, and so if you've got a 17 document you'd like to show me, I'd be really happy to 18 see it.</p> <p>19 Q. BY MR. GRABER: Yeah. I was just asking 20 whether -- I was asking your recollection, whether you 15:10:24 21 thought they disagreed with you or not.</p> <p>22 A. So I mean --</p> <p>23 Q. Is it your recollection that they didn't 24 disagree with you?</p> <p>25 A. So I mean -- 15:10:33</p>	<p>1 therefore, give rise to some degree of market power," and 2 we discussed that example.</p> <p>3 And I was like, yes, it's in the framework, 4 because there the additional footprint is not ubiquitous, 5 and so I remember the conversation with them. It was 15:12:25 6 really -- it was constructive, and it looks to me like 7 you're looking at a document --</p> <p>8 Q. BY MR. GRABER: Well, yeah --</p> <p>9 A. -- and I'm happy to look at the document, too, 10 but I can just tell you that the conversation I had with 15:12:36 11 them I felt were remarkably constructive.</p> <p>12 Q. Okay. Yeah. Let's go to the document.</p> <p>13 MR. GRABER: Could we pull up Document 6? 14 (Exhibit 348, Digital Platforms Inquiry Report, 15 June 2019, marked for identification 15:12:49 16 electronically by counsel.)</p> <p>17 MS. PUTTIEVA: It has been introduced.</p> <p>18 Q. BY MR. GRABER: Okay. So do you see the 19 document that's been marked as Exhibit 348?</p> <p>20 MR. ACOTT: Geoff, it doesn't appear to be 15:13:43 21 marked in the copy that I've opened.</p> <p>22 MR. GRABER: Yeah, we'll make sure it gets 23 marked.</p> <p>24 Q. But do you see at the top it should say 25 Exhibit 348 in the Exhibit Share? 15:13:56</p>

<p style="text-align: right;">Page 122</p> <p>1 A. I just want to apology. In the -- it actually 2 is not loading properly for me, and it's giving me -- I 3 think it's a very long document and -- 4 Q. It is. 5 A. -- it's giving an out of memory -- it's giving 15:14:06 6 me a, you know, sort of, big out of memory warning file. 7 MR. GRABER: Francis, are you able to see it? 8 MR. ACOTT: I can see it, and I do see that 348 9 in the file name at the top. 10 Dr. Tucker, if you're having issues -- I don't 15:14:30 11 know if it's with your web browser. We might want to go 12 off the record and restart your -- 13 THE VIDEOGRAPHER: Would you like to go off, 14 Counsel? 15 THE WITNESS: I think it's loading up very 15:14:43 16 slowly, and so -- 17 MR. GRABER: Why don't we give it just a second. 18 If it doesn't load up, we can go off the record, but 19 let's just, if we can, try to plow through. 20 THE WITNESS: Yeah, of course. It's doing that 15:14:57 21 thing where the PDF is just loading up with gray boxes. 22 Q. BY MR. GRABER: I see. 23 A. And it says, "There was an error processing a 24 page. An internal error occurred." 25 Q. Is it still loading? 15:15:19</p>	<p style="text-align: right;">Page 124</p> <p>1 Q. Okay. And you see towards the bottom of the 2 page it says, "2.5.2 Google." 3 Do you see that? 4 A. Yes, I do. 5 Q. All right. And you see in the third full 15:26:30 6 paragraph where it says, "Facebook asserts"? 7 A. Yes. 8 Q. And you see where it states there: "Facebook 9 assets that the data it uses to personalize advertising 10 is not rare or unique, and that the data it uses to 15:26:45 11 personalize ads is not entirely replicable. Facebook 12 engaged Professor Catherine Tucker to prepare a 13 submission on the extent to which large amounts of data 14 confers a competitive advantage. Professor Tucker argues 15 that the amount of data an entity has is not inherently 15:27:02 16 valuable. For example, she cites her prior research 17 where the ability to predict gender was not correlated 18 with the amount of data a data broker has access to. 19 Professor Tucker concedes that what makes data valuable 20 is the ability to make the right inferences based on the 15:27:20 21 data that a firm has access to." 22 Did I read that right? 23 A. Yes. 24 Q. Okay. And then do you see where it says, "The 25 ACCC disagrees with Professor Tucker's assertion that 15:27:31</p>
<p style="text-align: right;">Page 123</p> <p>1 A. I'm just trying to reload it, and it's saying 2 out of memory. I am so sorry, but is there a chance we 3 could take a break and I restart my computer, because 4 that usually helps? 5 Q. If that helps, sure. Sure. Why don't we take a 15:15:38 6 break. We've been going for a little while anyway. 7 THE VIDEOGRAPHER: We are now going off the 8 record. The time is 3:16 p.m. Eastern Daylight Time. 9 (Recess.) 10 THE VIDEOGRAPHER: We are now back on the 15:25:21 11 record. The time is 3:25 p.m. Eastern Daylight Time. 12 Q. BY MR. GRABER: Okay. And, Dr. Tucker, you see 13 the document that's been labeled as -- or designated as 14 Exhibit 348? 15 A. Yes. I see it, yes. 15:25:42 16 Q. Okay. If you could go to page 91 of the 17 document. At the bottom of the page, it's exhibit (sic) 18 87 of the document itself, but it is page 91 of the PDF. 19 A. Could you just repeat the number, so page 87 in 20 the PDF? 15:26:07 21 Q. It's page 87 of the document itself, but if you 22 look -- 23 A. Yes, I can see that. 24 Q. Yeah. Are you there? 25 A. Yes, I am. 15:26:16</p>	<p style="text-align: right;">Page 125</p> <p>1 Facebook obtains little competitive advantage as a result 2 of the data held." 3 Do you see that? 4 A. Yes, I see that sentence. 5 Q. Okay. Were you aware that the ACCC disagreed 15:27:43 6 with your assertion as is set forth here? 7 MR. ACOTT: Object to form. 8 THE WITNESS: You know, it's a long time since I 9 looked at this report. You know, I had a few feelings 10 about it. The first, I was actually just pleased that 15:27:59 11 they cited so much of my research for it, and they did 12 certainly mention -- you know, you can look through it 13 and see other mentions of me. 14 Now, what's interesting about this is that in 15 some sense they've adopted the framework that I was 16 encouraging them to adopt, so that is pleasing, and I 17 think our matter of disagreement is whether the types of 18 declared data that Facebook has access to, such as gender 19 and age, are particularly unique, and so you can see 20 there in the paragraph below, you know, they said what 15:28:15 21 they said, but I would encourage you to also look at the 22 rest of the document, because they certainly cite a lot 23 of my research there, too, and I think they found that 24 helpful. 25 Q. BY MR. GRABER: You conduct academic experiments 15:28:50</p>

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<p>1 using Facebook's platform; is that right?</p> <p>2 MR. ACOTT: Object to the form.</p> <p>3 THE WITNESS: So I can -- usually what happens</p> <p>4 is I partner with a small nonprofit, and then I conduct</p> <p>5 an experiment to an academic inquiry while trying to help 15:29:07</p> <p>6 that nonprofit with their advertising.</p> <p>7 Q. BY MR. GRABER: Did you obtain any type of</p> <p>8 permission from Facebook to conduct that research on its</p> <p>9 platform?</p> <p>10 MR. ACOTT: Object to form. 15:29:24</p> <p>11 THE WITNESS: So, no, I mean, usually what's</p> <p>12 happening is I'm helping a small nonprofit with its</p> <p>13 advertising, and, you know, I'm paying the money to</p> <p>14 Facebook and acting as any advertiser would. The only</p> <p>15 distinction is that I, then, try and publish and peer 15:29:46</p> <p>16 review the search, what I find out as a result of the</p> <p>17 advertising I've conducted on behalf of the nonprofit.</p> <p>18 Q. BY MR. GRABER: Have you ever obtained</p> <p>19 permission from Facebook to utilize the platform for your</p> <p>20 academic research? 15:30:05</p> <p>21 MR. ACOTT: Object to the form.</p> <p>22 THE WITNESS: So I've certainly had permission,</p> <p>23 obviously, from the nonprofit, and I have my own Facebook</p> <p>24 ads account, which gives me permission to run ad</p> <p>25 campaigns. You know, I couldn't, sitting here today, 15:30:35</p>	<p>1 THE WITNESS: So I just -- I really don't know</p> <p>2 what you're talking about. I'm really happy if you put</p> <p>3 something in front of me so I can understand what you're</p> <p>4 talking about, but I really just don't know.</p> <p>5 Q. BY MR. GRABER: Well, it wouldn't surprise you 15:32:45</p> <p>6 if you said that; right?</p> <p>7 MR. ACOTT: Same objection.</p> <p>8 THE WITNESS: Well, I mean, it would surprise me</p> <p>9 to a certain extent, because, you know, as someone who</p> <p>10 thinks about antitrust. I think about switching costs. 15:33:01</p> <p>11 I think about network effects. I think about unique</p> <p>12 sources of competitive advantage. These are not the</p> <p>13 economic -- as economic forces, they would lead me to not</p> <p>14 worry about Facebook, so that's why I'm surprised at what</p> <p>15 you just said, but if you want to point me to something, 15:33:25</p> <p>16 I'm really happy to look at it.</p> <p>17 Q. BY MR. GRABER: Let's go to Document 7.</p> <p>18 (Exhibit 349, The Technology Policy Institute</p> <p>19 article, marked for identification</p> <p>20 electronically by counsel.) 15:33:43</p> <p>21 MS. PUTTIEVA: Exhibit 349 has been introduced.</p> <p>22 Q. BY MR. GRABER: Do you see the document that's</p> <p>23 been designated as Exhibit 349?</p> <p>24 A. So, yes, I see that document.</p> <p>25 Q. Okay. And the title of this document is "MIT 15:34:13</p>
Page 127	Page 129
<p>1 tell you -- you know, all I know is I have a Facebook ad</p> <p>2 account, which gives me permission to run ad campaigns,</p> <p>3 and any results I publish are metrics which are freely</p> <p>4 given by Facebook -- from Facebook to me as an</p> <p>5 advertiser. 15:30:54</p> <p>6 Q. BY MR. GRABER: Now, in the past you've stated</p> <p>7 that you worry about Facebook; right?</p> <p>8 MR. ACOTT: Object to the form.</p> <p>9 THE WITNESS: I just don't know the context of</p> <p>10 that. I mean, if you give me -- I've certainly said -- 15:31:15</p> <p>11 and I don't know what you're referring to, quite</p> <p>12 honestly. I have said in the past that I was worried --</p> <p>13 and this is the distant past -- that at least initially</p> <p>14 Facebook's advertising product -- and we're talking about</p> <p>15 2010 -- wasn't great. And so I have maybe expressed a</p> <p>16 worry then. Is that what you're thinking of?</p> <p>17 But if you give me a context, I can explain it.</p> <p>18 I certainly -- you know, I -- when Facebook started out</p> <p>19 doing advertising, it hadn't done any of the wonderful</p> <p>20 innovations it's done today, and I might have expressed</p> <p>21 worry then, but you've probably got something specific in</p> <p>22 mind.</p> <p>23 Q. BY MR. GRABER: Haven't you expressed more</p> <p>24 recently worry about Facebook's competitive position?</p> <p>25 MR. ACOTT: Same objection. 15:32:14</p>	<p>1 Sloan Professor Catherine Tucker on Privacy, Antitrust,</p> <p>2 and the Value of Data."</p> <p>3 Do you see that?</p> <p>4 A. Yes.</p> <p>5 Q. Do you remember giving this -- or sitting down 15:34:25</p> <p>6 for this talk or podcast?</p> <p>7 A. I don't remember it specifically. I give a lot</p> <p>8 of talks, but, you know, I know The Technology Policy</p> <p>9 Institute.</p> <p>10 Q. Okay. 15:34:50</p> <p>11 If you go to page 7. And do you see there's a</p> <p>12 question from Tom Lenard. It says, "Well, but the people</p> <p>13 who are most worried about competition problems in the</p> <p>14 tech sector."</p> <p>15 Do you see that? 15:35:12</p> <p>16 A. Yes, I see that question.</p> <p>17 Q. Okay. And then you see there's a response from</p> <p>18 you?</p> <p>19 A. I do see --</p> <p>20 Q. Do you see that? 15:35:24</p> <p>21 A. Yes. Oh, I see it, yes, but I think you're</p> <p>22 reading the entire sentence wrong. I'm saying I'm</p> <p>23 worried about Facebook's longevity in the face of TikTok.</p> <p>24 Q. Uh-huh.</p> <p>25 A. And so, yes, and that is true. I was really 15:35:43</p>
Page 126	Page 128
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<p>1 tell you -- you know, all I know is I have a Facebook ad</p> <p>2 account, which gives me permission to run ad campaigns,</p> <p>3 and any results I publish are metrics which are freely</p> <p>4 given by Facebook -- from Facebook to me as an</p> <p>5 advertiser. 15:30:54</p> <p>6 Q. BY MR. GRABER: Now, in the past you've stated</p> <p>7 that you worry about Facebook; right?</p> <p>8 MR. ACOTT: Object to the form.</p> <p>9 THE WITNESS: I just don't know the context of</p> <p>10 that. I mean, if you give me -- I've certainly said -- 15:31:15</p> <p>11 and I don't know what you're referring to, quite</p> <p>12 honestly. I have said in the past that I was worried --</p> <p>13 and this is the distant past -- that at least initially</p> <p>14 Facebook's advertising product -- and we're talking about</p> <p>15 2010 -- wasn't great. And so I have maybe expressed a</p> <p>16 worry then. Is that what you're thinking of?</p> <p>17 But if you give me a context, I can explain it.</p> <p>18 I certainly -- you know, I -- when Facebook started out</p> <p>19 doing advertising, it hadn't done any of the wonderful</p> <p>20 innovations it's done today, and I might have expressed</p> <p>21 worry then, but you've probably got something specific in</p> <p>22 mind.</p> <p>23 Q. BY MR. GRABER: Haven't you expressed more</p> <p>24 recently worry about Facebook's competitive position?</p> <p>25 MR. ACOTT: Same objection. 15:32:14</p>	<p>1 Sloan Professor Catherine Tucker on Privacy, Antitrust,</p> <p>2 and the Value of Data."</p> <p>3 Do you see that?</p> <p>4 A. Yes.</p> <p>5 Q. Do you remember giving this -- or sitting down 15:34:25</p> <p>6 for this talk or podcast?</p> <p>7 A. I don't remember it specifically. I give a lot</p> <p>8 of talks, but, you know, I know The Technology Policy</p> <p>9 Institute.</p> <p>10 Q. Okay. 15:34:50</p> <p>11 If you go to page 7. And do you see there's a</p> <p>12 question from Tom Lenard. It says, "Well, but the people</p> <p>13 who are most worried about competition problems in the</p> <p>14 tech sector."</p> <p>15 Do you see that? 15:35:12</p> <p>16 A. Yes, I see that question.</p> <p>17 Q. Okay. And then you see there's a response from</p> <p>18 you?</p> <p>19 A. I do see --</p> <p>20 Q. Do you see that? 15:35:24</p> <p>21 A. Yes. Oh, I see it, yes, but I think you're</p> <p>22 reading the entire sentence wrong. I'm saying I'm</p> <p>23 worried about Facebook's longevity in the face of TikTok.</p> <p>24 Q. Uh-huh.</p> <p>25 A. And so, yes, and that is true. I was really 15:35:43</p>

<p>Page 130</p> <p>1 confused about what you were talking about, but now this 2 all makes sense.</p> <p>3 I'm talking here about the fragility of network 4 effects, and I'm saying, gosh, Facebook and the entire 5 TikTok process shows exactly how inherently fragile      15:35:57</p> <p>6 network effects are for a social media website, and I 7 worry about Facebook's future in this industry, so that's 8 what I'm saying there.</p> <p>9 Q. That's all I was asking.</p> <p>10 A. Yeah, I'm just -- phew. I was just like -- I      15:36:18</p> <p>11 was very surprised by your question, and I was worried 12 I'd been misquoted somewhere, but, no, in this passage</p> <p>13 I'm talking about, you know, my work on the fragility of 14 network effects and the fact that it's easy for a new</p> <p>15 social media platform, such as TikTok, to come along, and      15:36:36</p> <p>16 that's why network effects aren't as strong as often 17 believed in social media websites, and that's all I'm 18 saying here.</p> <p>19 MR. GRABER: Okay. Is anyone hearing a beeping 20 sound in the background?      15:36:54</p> <p>21 MR. ACOTT: Yeah, I'm getting that, too.</p> <p>22 MR. GRABER: Could we go off the record for just 23 a second?</p> <p>24 THE VIDEOGRAPHER: We are now going off the 25 record. The time is 3:37 p.m. Eastern Daylight Time.      15:37:03</p>	<p>Page 132</p> <p>1 Q. BY MR. GRABER: Some people get more utility 2 from being lied to, that's your testimony?</p> <p>3 MR. ACOTT: Object to the form.</p> <p>4 THE WITNESS: No. I just meant that 5 sometimes -- say when someone's given a bad speech and      15:40:44</p> <p>6 they ask you how it went, they're just not looking for 7 you to tell the truth. They're looking for you to say 8 something supportive, as supportive as you can, and 9 that's all I meant, just that common nicety, and that's 10 just, you know, part of human interaction, but I think if      15:41:04</p> <p>11 you asked most people, they would say that they would 12 prefer not to be lied to in general.</p> <p>13 Q. BY MR. GRABER: But do you think advertisers 14 ever want to be lied to?</p> <p>15 MR. ACOTT: Object to the form.      15:41:32</p> <p>16 THE WITNESS: So with the same qualification, I 17 think if you ask people's -- advertisers' stated 18 preference about whether or not they wanted to be lied 19 to, like most the population, they would say no, but 20 again, with the caution that we're not -- I'm not in any      15:41:58</p> <p>21 way wanting to imply a lie and a potential reach 22 estimate.</p> <p>23 Q. BY MR. GRABER: Can we agree it's always best 24 for Facebook to tell advertisers the truth?</p> <p>25 MR. ACOTT: Same objection.      15:42:19</p>
<p>Page 131</p> <p>1 (Discussion off the record.)</p> <p>2 THE VIDEOGRAPHER: We are now back on the 3 record. The time is 3:39 p.m. Eastern Daylight Time.</p> <p>4 Q. BY MR. GRABER: All right. So we'll just 5 continue on, notwithstanding this beeping sound in the 6 background. I apologize for that, Dr. Tucker.</p> <p>7 Let me ask you some -- let me ask you some easy 8 questions now. Can we agree that advertisers don't want 9 to be lied to?</p> <p>10 MR. ACOTT: Object to the form.      15:39:14</p> <p>11 THE WITNESS: So, you know, in general, no one 12 wants to be lied to, you know, just as a general point.</p> <p>13 Q. BY MR. GRABER: And in that same vein, can't we 14 agree that advertisers don't want to be lied to?</p> <p>15 MR. ACOTT: Same objection.      15:39:41</p> <p>16 THE WITNESS: So in terms of -- I'm just 17 hesitating because evidently if -- you know, we're 18 talking about -- I'm just worried that we're going to 19 equate an estimate with a lie, but, you know, I think in 20 general, if you give people a choice, they prefer not to      15:40:10</p> <p>21 be lied to. There are, of course, occasions where people 22 receive more utility if they do choose to be -- if they 23 are lied to, but I think as a general principle, if you 24 ask most people, they say, "No, I prefer to not -- not be 25 lied to."      15:40:31</p>	<p>Page 133</p> <p>1 THE WITNESS: I think it is in Facebook's 2 self-interest to provide as much data and analytics it 3 can do and reliable as whereas possible to its 4 advertisers, yes, and that's part of digital advertising, 5 to try and provide useful data for advertisers.      15:42:48</p> <p>6 Q. BY MR. GRABER: You do agree with me that it's 7 always best for Facebook to tell advertisers the truth; 8 right?</p> <p>9 MR. ACOTT: Same objection.</p> <p>10 THE WITNESS: Well, again, I'll have just one of      15:42:59</p> <p>11 my qualifications, that given that Facebook is a 12 two-sided platform, I actually don't think it's best for 13 Facebook to, for example, make completely transparent the 14 way they identify spam ads, so annoying ads, so if you 15 take that -- you know, there are times when I actually      15:43:21</p> <p>16 think in order to balance the two sides of the platform, 17 it's not in Facebook's -- the two-sided platform's 18 interest to be completely, radically transparent at all 19 times, but in general, I do believe that Facebook's 20 incentives as an advertising platform is to try to put      15:43:41</p> <p>21 together the best and most useful and accurate data it 22 can to its advertisers.</p> <p>23 Q. BY MR. GRABER: Okay. Well, maybe we're talking 24 past each other, Dr. Tucker. I mean, this seems to be a 25 simple "yes" or "no" question. Let's set aside issues      15:43:59</p>

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<p>1 relating to the disclosure of, you know, the inner      2 workings of Facebook or the disclosure of trade secrets      3 or other proprietary data.</p> <p>4 Can we just agree as a general matter it's      5 always best for Facebook to tell advertisers the truth? 15:44:21</p> <p>6 MR. ACOTT: Object to the form.</p> <p>7 THE WITNESS: Yes. I think it is in      8 Facebook's -- they have incentives to try and give      9 advertisers the data and tools they need to best measure      10 their advertising outcomes, and that's what they do. 15:44:43</p> <p>11 Q. BY MR. GRABER: And you would agree that      12 advertisers deserve to be told the truth from Facebook;      13 right?</p> <p>14 MR. ACOTT: Object to the form.</p> <p>15 THE WITNESS: So I'm -- I am an economist, not a 15:44:56      16 philosopher, but I do believe that advertisers should      17 receive, to the best of Facebook's ability, data which      18 helps them make the right advertising decisions.</p> <p>19 Q. BY MR. GRABER: Okay. I don't think I got a      20 "yes" or "no" answer to this straightforward question. 15:45:21</p> <p>21 Let me ask it one more time.</p> <p>22 You agree that advertisers deserve to be told      23 the truth from Facebook; right?</p> <p>24 MR. ACOTT: Object to the form.</p> <p>25 THE WITNESS: So, yes, I do believe advertisers 15:45:40</p>	<p>1 should be honest with its advertisers?</p> <p>2 MR. ACOTT: Object to the form.</p> <p>3 THE WITNESS: Yes. As any company competing in      4 the digital advertising system, yes, they need to      5 communicate honestly with advertisers. 15:47:46</p> <p>6 Q. BY MR. GRABER: And you agree that advertisers      7 deserve accurate metrics from Facebook; right?</p> <p>8 MR. ACOTT: Object to the form.</p> <p>9 THE WITNESS: So I think advertisers need to      10 have reliable data on which to make decisions, and they 15:48:07      11 need to be able to -- you know, to make those decisions.      12 Facebook, like other advertising platforms, needs to      13 provide reliable data as much as it can on, say, clicks,      14 conversions and so on.</p> <p>15 Q. BY MR. GRABER: I asked something a little bit 15:48:36      16 different. I asked: Can't we agree that advertisers      17 deserve accurate metrics from Facebook?</p> <p>18 MR. ACOTT: Same objection.</p> <p>19 THE WITNESS: So I thought I answered that, and      20 I don't want to revisit an old discussion about what is a 15:49:00      21 metric and what isn't, and so, yes, I believe that      22 advertisers should receive, to the best of Facebook's      23 ability, data which helps inform them and evaluate the      24 performance of their ads, yes.</p> <p>25 Q. BY MR. GRABER: So you've studiously avoided the 15:49:17</p>
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<p>1 deserve the -- to receive the truth in the form of, you      2 know, data which helps them make good advertising      3 decisions. Yes.</p> <p>4 Q. BY MR. GRABER: Can we agree that Facebook      5 should always be honest with its advertisers? 15:45:58</p> <p>6 MR. ACOTT: Object to the form --</p> <p>7 THE WITNESS: So that goes -- I don't want to      8 annoy you by putting a caveat about why you wouldn't want      9 to be completely transparent, so what I'd say is that      10 Facebook, and any advertising platform that's competing 15:46:18      11 in this competitive industry, needs to be honest with its      12 advertisers to the extent that it's not leading to the      13 kind of disclosure which leads to gaming the system.</p> <p>14 Q. BY MR. GRABER: How would disclosures lead to      15 gaming the system? 15:46:50</p> <p>16 MR. ACOTT: Object to the form.</p> <p>17 THE WITNESS: Oh, that just goes back to my      18 point about why you wouldn't want to be completely      19 transparent with advertisers how you identified ads which      20 were spammy or disruptive to user experience. 15:47:06</p> <p>21 Q. BY MR. GRABER: Okay. So, Dr. Tucker, again,      22 let's set aside the situation of, you know, proprietary      23 information, trade secrets, information securities      24 protocols. Let's set that aside.</p> <p>25 As a general matter, can we agree that Facebook 15:47:26</p>	<p>1 term "accurate," Dr. Tucker, and I'm just -- I'm      2 wondering why you're having a difficult time answering      3 the question. So let me just ask it again.</p> <p>4 Can we agree that advertisers deserve accurate      5 metrics from Facebook? 15:49:37</p> <p>6 MR. ACOTT: Object to the form.</p> <p>7 THE WITNESS: So what -- so advertisers deserve      8 to have -- so the reason -- I'm going to just be clear.      9 You know, you're, sort of, going on the word "accurate,"      10 why am I avoiding the word "accurate." It's that I know 15:49:58      11 in digital advertising, ultimately accuracy is a goal,      12 rather than zero-one standard. So, for example, if      13 someone sees an ad, goes to a website, buys the product,      14 yes -- and there was a click involved, then Facebook      15 would count that as a conversion. 15:50:27</p> <p>16 Now, it could just be that for whatever reason,      17 that person randomly, upon chance, went to that website,      18 and then, you know, is it accurate to call it a      19 conversion due to the Facebook ad? That's not clear, so      20 that's why I'm saying accuracy -- you know, what you 15:50:46      21 count as a conversion, is something which is actually      22 just debated within the digital advertising community.</p> <p>23 And so I think when you're using the word      24 "accurate," maybe the reason I'm not using the word      25 "accurate" is that I think you have in mind a zero-one 15:51:06</p>

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1 definition of accuracy, rather than acknowledging that 2 any metric is going to have inputs of judgment about how 3 you -- how you calculate it.  4 Now, I do believe that Facebook advertisers and 5 Facebook itself has competitive reasons to try and use 6 the best judgment to come up with its metrics to try and 7 make them as close to the truth as possible. But I do 8 want to emphasize that this notion of zero-one accuracy 9 or being completely binary ignores all the debate about 10 what is an appropriate metric within online advertising.	15:51:28	1 continued to use Facebook despite his role in the case. 2 So I've certainly read that, but I haven't independently 3 gone to an advertiser and interviewed them as part of 4 this case.  5 Q. BY MR. GRABER: So it's your view that the 6 plaintiff you're talking about doesn't care about being 7 misled. Is that your testimony?	15:55:14
11 Q. BY MR. GRABER: So my question to you as to 12 whether advertisers deserve accurate metrics from 13 Facebook, that's -- in your view, that's a little bit of 14 a complex nuanced question; is that fair?	15:51:53	8 MR. ACOTT: Object to the form. 9 THE WITNESS: I'm just pointing to what he said 10 in the -- in the message board, and we can go to that 11 precise paragraph in my report, if you'd like, and, you 12 know, that he continued to spend money with Facebook. 13 It's not clear to me that -- you know, we have, 14 obviously, a disagreement about whether or not he was 15 actually misled in any sense.	15:55:26
15 MR. ACOTT: Object to the form.  16 THE WITNESS: No, that's not fair. What I said 17 is that Facebook advertisers deserve Facebook to work 18 hard to obtain estimates, or metrics when it's relating 19 to conversions, that can best inform advertising 20 decisions.	15:52:14	15:55:46 16 But, you know, even -- even having filed a 17 complaint saying he had been misled, he continued to use 18 Facebook, you know, and I'm just pointing to that, 19 because you asked me about any advertisers that appeared 20 to not have cared when they claim that they have been 21 misled.	15:56:05
21 Now, any advertiser knows that whether or not -- 22 that it's not that there's ever going to be one 23 definition of exactly what that metric is, but that 24 Facebook needs to come up and use its best judgments, 25 best efforts to come up with a way of coming up with a	15:52:37	22 Q. BY MR. GRABER: So let's set aside the named 23 plaintiffs in this action. What I'm asking you is 24 whether any advertiser has ever told you personally that 25 they do not care about being misled by Facebook?	15:56:21
1 metric that an advertiser might use, and that's simply 2 what I'm saying.  3 You were just asking me -- you're asking me a 4 question which is not that it's nuanced. It's just that 5 it misunderstands whether or not metrics is, sort of, 6 zero-one in their accuracy, and I think that's what I'm 7 trying to clarify.  8 Q. BY MR. GRABER: Okay. I don't want to go around 9 and around. So let me just ask it this way: I mean, it 10 sounds to me like -- to me, Dr. Tucker, that my question 11 to you as to whether advertisers deserve accurate metrics 12 from Facebook is not a "yes" or "no" question for you; is 13 that fair?	15:53:15	1 MR. ACOTT: Object to form. 2 THE WITNESS: So, no, I've never been told that, 3 and it would be a highly unlikely conversation to have 4 with any official advertiser, so no.  5 Q. BY MR. GRABER: Has your research ever shown 6 that advertisers prefer to be lied to?	15:56:41
14 MR. ACOTT: Object to the form.  15 THE WITNESS: So how about I answer it this way: 16 Given the -- given the ambiguity about how to define any 17 one metric, Facebook advertisers deserve the most 18 accurate rendering of that metric.  19 Q. BY MR. GRABER: Has any advertiser told you that 20 they do not care about being misled by Facebook?	15:53:52	7 MR. ACOTT: Object to the form. 8 THE WITNESS: So, I mean, my research 9 consistently supports my viewpoints in the case about 10 what advertisers care about. I have not conducted an 11 inquiry about whether or not advertisers have a 12 preference to be lied to.  13 Q. BY MR. GRABER: Do you think they have a 14 preference to be lied to?	15:56:59
21 MR. ACOTT: Object to the form.  22 THE WITNESS: So no, no advertiser's said that 23 directly, but, of course, in my report I quote one of the 24 named plaintiffs who was explaining why even despite the 25 revelation -- he was on a message board explaining why he	15:54:32	15 MR. ACOTT: Same objection.	15:57:18
	15:54:58	16 THE WITNESS: I think when -- you asked me that 17 question and I said no, I imagine -- but this is -- I've 18 never -- you asked me if I conducted a study, and I said, 19 no, I haven't. You know, the great thing -- you know, 20 you spoke about -- the great thing about the digital 21 revolution is that in the past, because you couldn't 22 check whether or not your advertising was performing, it 23 was certainly possible to be lied to. It was possible to 24 be lied to about a circulation or a viewership. You just 25 wouldn't know.	15:57:32

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<p>1 Now, because of this measurability, in some      2 sense the focus is on, well, how is my advertising      3 performing in real dollars that I can myself observe, and      4 so, no, I don't think that advertisers want to be lied      5 to, but what I am -- I'm happy about, as someone who      15:58:12      6 studies this area, is that now that's far less of a risk      7 for advertisers, because they are able to concretely      8 measure their metrics.</p> <p>9 Q. BY MR. GRABER: Has your research ever shown      10 that advertisers want inflated metrics?                        15:58:39</p> <p>11 MR. ACOTT: Object to the form.</p> <p>12 THE WITNESS: Well, I'm just trying to think,      13 so -- I'm just trying to make sense of your question, but      14 no. Typically, the digital revolution is about being      15 able to actually measure whether an ad leads to a sale      15:59:10      16 and gives you dollars, and I have not seen any -- you      17 know, I have not researched and have no reason to suppose      18 that advertisers would be -- would prefer to not receive      19 the accurate data there.</p> <p>20 Q. BY MR. GRABER: And you don't have any research      15:59:36      21 showing that advertisers want inflated metrics; right?</p> <p>22 MR. ACOTT: Object to the form.</p> <p>23 THE WITNESS: That they want -- I'm sorry. I      24 missed the word.</p> <p>25 Q. BY MR. GRABER: Inflated metrics.                        15:59:46</p>	<p>1 sufficient time, you think you could come up with a      2 clever way of saying that advertisers do want some metric      3 inflated; is that right?</p> <p>4 MR. ACOTT: Object to the form.</p> <p>5 THE WITNESS: Well, you know, it might come to      16:01:40      6 me, but it would be of the kind where a single advertiser      7 would want some -- so if I'm an advertiser -- I'll give      8 you an example of the kind of thing I was thinking of      9 that's not very good. So if I'm an advertiser, then --      10 and I'm in a competitive industry, then there's a reason    16:01:56      11 that I might want my rivals or competitors' metrics to be      12 distorted, because then they wouldn't make great      13 advertising decisions.</p> <p>14 Now, let's be clear. That example, and probably      15 any example I could come up with, would be where the    16:02:15      16 advertisers themselves had a source of truth, and instead      17 it was giving them some kind of a competitive advantage      18 within the industry.</p> <p>19 Q. BY MR. GRABER: So maybe an advertiser would      20 want to inflict inflated metrics on one of their      16:02:37      21 competitors to harm them; right?</p> <p>22 MR. ACOTT: Object to form.</p> <p>23 THE WITNESS: So what I was thinking about is      24 that, you know, if we have an example where, you know,      25 I'm using this obscure website to place ads. My      16:02:59</p>
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<p>1 MR. ACOTT: Same objection.</p> <p>2 THE WITNESS: Oh, so you said -- yeah. So I'm      3 sorry I wasn't clear. No, I have seen no evidence that      4 when -- I mean, I -- it is very difficult to think about      5 a way to inflate a cost for conversion, but I certainly    16:00:01      6 don't think that if there was a way to inflate a cost for      7 conversion that advertiser would like that, because it      8 would mean that they'd miss out on valuable advertising      9 opportunities, potentially.</p> <p>10 Q. BY MR. GRABER: Can you think of any metrics      16:00:19      11 that an advertisers would want to be inflated?</p> <p>12 MR. ACOTT: Object to the form.</p> <p>13 THE WITNESS: Probably if I thought about it      14 long enough I could come up with a clever example, but      15 no. You know, I think the main example of the key metric    16:00:45      16 here is the cost for conversion, and I really can't see      17 why any advertiser would want that inflated, because      18 they'd miss out on valuable advertising opportunities.</p> <p>19 So I might think of a clever response in 24      20 hours, but the main metric, cost for conversion, return    16:01:02      21 on ads spent, typically advertisers don't want that to be      22 inflated, because otherwise -- so you wouldn't want costs      23 for conversion inflated, because otherwise you would miss      24 out on good opportunities to advertise.</p> <p>25 Q. BY MR. GRABER: Dr. Tucker, if you were given      16:01:21</p>	<p>1 competitor does it, too. For whatever reason, there's a      2 blip in the website and then that competitor measures the      3 wrong cost for conversion and receives an inflated cost      4 for conversion, well, then I indirectly benefit as an      5 advertiser, because then I don't have competition on that    16:03:21      6 website, but it's incredibly indirect, and, as I say,      7 it's sort of a -- very much an edge case of the kind you      8 asked me about.</p> <p>9 Q. BY MR. GRABER: Dr. Tucker, when were you first      10 engaged in this matter?    16:03:40</p> <p>11 A. My impression is it was -- I believe it was      12 before the pandemic.</p> <p>13 Q. Did you sign -- do you remember signing a      14 protective order and making some disclosures in      15 connection with your engagement in this matter?      16:04:06</p> <p>16 MR. ACOTT: Object to the form.</p> <p>17 THE WITNESS: I'm so sorry. I don't remember      18 any such document.</p> <p>19 Q. BY MR. GRABER: Who was the first person to call      20 you about this matter?    16:04:26</p> <p>21 A. I apologize. I can't remember. I remember an      22 interview, but I don't remember how it was initiated.</p> <p>23 Q. Who interviewed you?</p> <p>24 MR. ACOTT: Object to the form.</p> <p>25 And I would just caution the witness not to      16:05:00</p>
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<p>1 Now, because of this measurability, in some      2 sense the focus is on, well, how is my advertising      3 performing in real dollars that I can myself observe, and      4 so, no, I don't think that advertisers want to be lied      5 to, but what I am -- I'm happy about, as someone who      15:58:12      6 studies this area, is that now that's far less of a risk      7 for advertisers, because they are able to concretely      8 measure their metrics.</p> <p>9 Q. BY MR. GRABER: Has your research ever shown      10 that advertisers want inflated metrics?                        15:58:39</p> <p>11 MR. ACOTT: Object to the form.</p> <p>12 THE WITNESS: Well, I'm just trying to think,      13 so -- I'm just trying to make sense of your question, but      14 no. Typically, the digital revolution is about being      15 able to actually measure whether an ad leads to a sale    15:59:10      16 and gives you dollars, and I have not seen any -- you      17 know, I have not researched and have no reason to suppose      18 that advertisers would be -- would prefer to not receive      19 the accurate data there.</p> <p>20 Q. BY MR. GRABER: And you don't have any research    15:59:36      21 showing that advertisers want inflated metrics; right?</p> <p>22 MR. ACOTT: Object to the form.</p> <p>23 THE WITNESS: That they want -- I'm sorry. I      24 missed the word.</p> <p>25 Q. BY MR. GRABER: Inflated metrics.                        15:59:46</p>	<p>1 sufficient time, you think you could come up with a      2 clever way of saying that advertisers do want some metric      3 inflated; is that right?</p> <p>4 MR. ACOTT: Object to the form.</p> <p>5 THE WITNESS: Well, you know, it might come to      16:01:40      6 me, but it would be of the kind where a single advertiser      7 would want some -- so if I'm an advertiser -- I'll give      8 you an example of the kind of thing I was thinking of      9 that's not very good. So if I'm an advertiser, then --      10 and I'm in a competitive industry, then there's a reason    16:01:56      11 that I might want my rivals or competitors' metrics to be      12 distorted, because then they wouldn't make great      13 advertising decisions.</p> <p>14 Now, let's be clear. That example, and probably      15 any example I could come up with, would be where the    16:02:15      16 advertisers themselves had a source of truth, and instead      17 it was giving them some kind of a competitive advantage      18 within the industry.</p> <p>19 Q. BY MR. GRABER: So maybe an advertiser would      20 want to inflict inflated metrics on one of their      16:02:37      21 competitors to harm them; right?</p> <p>22 MR. ACOTT: Object to form.</p> <p>23 THE WITNESS: So what I was thinking about is      24 that, you know, if we have an example where, you know,      25 I'm using this obscure website to place ads. My      16:02:59</p>
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<p>1 MR. ACOTT: Same objection.</p> <p>2 THE WITNESS: Oh, so you said -- yeah. So I'm      3 sorry I wasn't clear. No, I have seen no evidence that      4 when -- I mean, I -- it is very difficult to think about      5 a way to inflate a cost for conversion, but I certainly    16:00:01      6 don't think that if there was a way to inflate a cost for      7 conversion that advertiser would like that, because it      8 would mean that they'd miss out on valuable advertising      9 opportunities, potentially.</p> <p>10 Q. BY MR. GRABER: Can you think of any metrics      16:00:19      11 that an advertisers would want to be inflated?</p> <p>12 MR. ACOTT: Object to the form.</p> <p>13 THE WITNESS: Probably if I thought about it      14 long enough I could come up with a clever example, but      15 no. You know, I think the main example of the key metric    16:00:45      16 here is the cost for conversion, and I really can't see      17 why any advertiser would want that inflated, because      18 they'd miss out on valuable advertising opportunities.</p> <p>19 So I might think of a clever response in 24      20 hours, but the main metric, cost for conversion, return    16:01:02      21 on ads spent, typically advertisers don't want that to be      22 inflated, because otherwise -- so you wouldn't want costs      23 for conversion inflated, because otherwise you would miss      24 out on good opportunities to advertise.</p> <p>25 Q. BY MR. GRABER: Dr. Tucker, if you were given      16:01:21</p>	<p>1 competitor does it, too. For whatever reason, there's a      2 blip in the website and then that competitor measures the      3 wrong cost for conversion and receives an inflated cost      4 for conversion, well, then I indirectly benefit as an      5 advertiser, because then I don't have competition on that    16:03:21      6 website, but it's incredibly indirect, and, as I say,      7 it's sort of a -- very much an edge case of the kind you      8 asked me about.</p> <p>9 Q. BY MR. GRABER: Dr. Tucker, when were you first      10 engaged in this matter?    16:03:40</p> <p>11 A. My impression is it was -- I believe it was      12 before the pandemic.</p> <p>13 Q. Did you sign -- do you remember signing a      14 protective order and making some disclosures in      15 connection with your engagement in this matter?      16:04:06</p> <p>16 MR. ACOTT: Object to the form.</p> <p>17 THE WITNESS: I'm so sorry. I don't remember      18 any such document.</p> <p>19 Q. Who was the first person to call      20 you about this matter?    16:04:26</p> <p>21 A. I apologize. I can't remember. I remember an      22 interview, but I don't remember how it was initiated.</p> <p>23 Q. Who interviewed you?</p> <p>24 MR. ACOTT: Object to the form.</p> <p>25 And I would just caution the witness not to      16:05:00</p>

<p style="text-align: right;">Page 146</p> <p>1 divulge the contents of any communications with counsel.      2 THE WITNESS: I remember it being -- I remember      3 it being outside counsel, and I believe I remember Hilary      4 being on that call, but I don't remember much else, and I      5 can't remember who else was on it. 16:05:46</p> <p>6 Q. BY MR. GRABER: What was the first case you      7 worked on with Facebook?      8 A. That would be the Fraley case.      9 Q. Do you remember roughly when that was?      10 A. That would be around 2011/12. 16:06:09</p> <p>11 Q. Prior to working on that lawsuit, did you know      12 anyone at Facebook?      13 MR. ACOTT: Object to the form.      14 THE WITNESS: Not that I can remember.      15 Q. BY MR. GRABER: You didn't know anybody who      16 works at Facebook? 16:06:38</p> <p>17 A. Prior to 2011, I didn't know of anyone who      18 worked at Facebook that I can recall, no.      19 Q. Have you ever met any Facebook executives?      20 A. So I have met Facebook data scientists at a      21 variety of conferences. For example, they often come to      22 the conferences on digital experimentation, which is held      23 at MIT, and I remember meeting a data scientist at the      24 MBR conference on the economics of artificial      25 intelligence, so I've certainly met Facebook people 16:07:48</p>	<p>1 right?      2 A. I've tried my best --      3 MR. ACOTT: Object to the form.      4 THE WITNESS: Yes. I have tried to abide by      5 that rule as best as I can, yes. 16:09:40      6 Q. BY MR. GRABER: Do you think you've gone over it      7 a little bit over the last couple of years?      8 A. So, you know, what -- it's certainly going to      9 balance out, but, you know -- actually, it's not a      10 problem, because MIT allows you to balance it out over a 16:10:02      11 year, so if in a month like this where due to the      12 pandemic a lot of things have just got bunched up, my job      13 is, then, to just balance it out over the rest of the      14 year, so, no, I don't think I have gone over it, though,      15 of course, there has been a little bit of bunching this 16:10:24      16 particular month due to things being done delayed to the      17 pandemic.      18 Q. Understood.      19 And, Dr. Tucker, you spoke with several Facebook      20 employees in connection with the preparation of your 16:10:44      21 report in this matter; is that right?      22 A. That is correct.      23 Q. And did counsel select the persons you spoke to?      24 MR. ACOTT: Object to the form.      25 THE WITNESS: So, no. What happened was there 16:11:01</p>
<p style="text-align: right;">Page 147</p> <p>1 there, but I don't -- they never -- they didn't strike me      2 as particularly executives, if that makes sense, though I      3 don't want to in any way denigrate how important the work      4 they do is.      5 Q. Yeah, and I didn't mean to suggest that. I 16:08:05      6 just -- I'm referring to, you know, senior business      7 people at Facebook. Like, have you ever met any vice      8 presidents at Facebook?      9 A. No. I don't think so, no.      10 Q. You're a professor at MIT; right? 16:08:26      11 A. Yes, I am.      12 Q. Does MIT place a limit on the amount of      13 litigation-related work you can do?      14 A. Yes, they do.      15 Q. What's that limit? 16:08:37      16 A. So that limit is we're -- we're allowed to do,      17 basically, a day's work a week.      18 Q. Is that calculated as 8 hours per week, so 8      19 times 4, 24 hours a month?      20 MR. ACOTT: Object to the form. 16:09:08      21 THE WITNESS: So I'm not actually sure how it's      22 spelled out. Certainly MIT professors don't work eight      23 hours a day. I can tell you that, so I'm not sure how      24 it's spelled out, but it's told it's a day a week.      25 Q. BY MR. GRABER: And you've abided by that rule; 16:09:33</p>	<p>1 were three documents that I wanted to know more about,      2 and I asked counsel to set up interviews with Facebook      3 employees who could tell me about those documents.      4 Q. BY MR. GRABER: And who was on the call when you      5 spoke to those employees -- or I should -- strike that. 16:11:29      6 Who were on the calls when you spoke to Facebook      7 employees in connection with preparation of your report?      8 MR. ACOTT: Object to the form.      9 THE WITNESS: So I can't recall precisely. I      10 remember me -- you know, it was a Zoom call, so it was me 16:11:52      11 and the employee mainly on my screen. I think counsel      12 from Latham &amp; Watkins was on the call, though I couldn't      13 tell you who for each call.      14 Q. BY MR. GRABER: Any Facebook inhouse counsel?      15 A. I'm afraid I really don't know. 16:12:18      16 MR. GRABER: Let's go off the record.      17 THE VIDEOGRAPHER: We are now going off the      18 record. The time is 4:12 p.m. Eastern Daylight Time.      19 (Recess.)      20 THE VIDEOGRAPHER: We are now back on the 16:28:24      21 record. The time is 4:28 p.m. Eastern Daylight Time.      22 MR. GRABER: Okay. Just to be clear, can      23 everybody hear me?      24 THE VIDEOGRAPHER: Yes, sir.      25 MR. ACOTT: I can hear you. 16:28:45</p>

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1       MR. GRABER: Okay. Sorry. I had my volume 2 down. All right.	1       A. Yes, I have read through my report.
3       Q. Dr. Tucker, during the break just now, did you 4 have any conversations with your counsel about the 5 substance of your testimony?                                  16:28:57	2       Q. Are there any clarifications that you would like 3 to make to your report?
6       A. No, I didn't.	4       A. Yes. There's one -- well, there's two 5 clarifications. The first is obviously to update the      16:35:11 6 list of testimony, which I think we've already done on 7 the record.
7       Q. Okay. During any of the breaks today, have you 8 had any discussions with your counsel regarding the 9 substance of your testimony?	8       The other thing I would like to clarify is that 9 when I reread paragraph 123, I felt I could have 10 expressed it better.    16:35:32
10      A. No, I haven't.    16:29:07	11      Q. How so?
11      Q. Okay. Have you had any discussions with anyone 12 about the substance of your testimony today during the 13 breaks?	12      A. Well, what -- I was relating a conversation I 13 had with Mr. Geller, and Mr. Geller was saying that if 14 there was a formal study, it must have predated his 15 tenure by quite some time, because otherwise he would    16:35:52 16 have known of it. Now, I'm not sure that's fully 17 captured in the first sentence of paragraph 123, and I 18 just wanted to clarify that for the record.
14      MR. ACOTT: Sorry to interrupt you, Geoff. I'm 15 having a hard time hearing you.                              16:29:17	19      Q. And does that clarification cause you to change 20 any of your opinions in case?                                16:36:08
16      MR. GRABER: Sorry. What's that?	21      A. No, it doesn't.
17      MR. ACOTT: You're really choppy on my end. 18 Could you --	22      Q. Now, I'm going to try and introduce the document 23 as Exhibit 348 -- I'm sorry -- 350. Do you see it on 24 your end?
19      MR. GRABER: Yeah. Is that better?	25      (Exhibit 350, Expert Reply Report of Armando      16:36:44
20      MR. ACOTT: I can hear you now.                        16:29:25	
21      MR. GRABER: Yeah. Sorry about that.	
22      MR. ACOTT: Thank you.	
23      Q. BY MR. GRABER: Have you had any discussions 24 today with anyone about the substance of your testimony 25 during any of the breaks?                                      16:29:40	
Page 151	Page 153
1       A. No, I haven't.	1       Levy, Ph.D., marked for identification
2       Q. Thank you. I have no further questions. Your 3 counsel may have some redirect questions, but other than 4 that, thank you so much for your time today, Dr. Tucker. 5 We really appreciate it.                                        16:29:54	2       electronically by counsel.)
6       A. My absolute pleasure.	3       THE WITNESS: Yes, I do. Dr. Levy's report.
7       MR. ACOTT: Thanks, Geoff. Do you mind if we 8 just go off the record and just take five to go over 9 notes?	4       Q. BY MR. ACOTT: And that's Dr. Levy's March 23rd, 5 2021, report?
10      MR. GRABER: No problem.                                16:30:04	6       A. Yes. Sorry. I should be clear. It's his reply
11      THE VIDEOGRAPHER: We are now going off the 12 record. The time is 4:30 p.m. Eastern Daylight Time.	7 report.
13      (Recess.)	8       Q. Did you review that report prior to today?
14      THE VIDEOGRAPHER: We are now back on the 15 record. The time is 4:34 p.m. Eastern Daylight Time.      16:34:30	9       A. Yes, I did.
16      MR. ACOTT: Thank you.	10      Q. Did anything in that report cause you to change 11 any of your opinions in this case?
17	12      A. No, it didn't.
18      EXAMINATION	13      Q. I'm going to direct you to paragraph 5 of that 14 report, which is on page 2.
19 BY MR. ACOTT:	15      Mr. Levy states, quote: "Professor Tucker      16:37:19 16 points out that advertisers received value from their 17 advertisements on Facebook's platforms. She states that 18 I ignore this value, which is incorrect."
20      Q. Dr. Tucker, I just have a few questions for you.    16:34:34	19      Do you agree with Mr. Levy?
21      Can you please pull up Exhibit 344, which is 22 your report?	20      A. No, I don't.    16:37:35
23      A. Yes, I have that up.	21      Q. Why not?
24      Q. And you reviewed your report since it was 25 submitted on March 3rd; is that right?                        16:35:00	22      A. Well, Dr. Levy does ignore the value that 23 Facebook advertisers received for their impressions, and 24 he assumes that they benefit universally when they have 25 fewer impressions, and that's just ignoring the value     16:37:50

<p style="text-align: right;">Page 154</p> <p>1 that's created by Facebook ads.</p> <p>2 Q. And in the next paragraph, paragraph 6, Mr. Levy</p> <p>3 states that you provided no empirical evidence that</p> <p>4 advertisers with different objectives differ in their</p> <p>5 preferences for potential reach. 16:38:08</p> <p>6 Do you agree with Mr. Levy's critique?</p> <p>7 A. No, I don't. I have an entire section in my</p> <p>8 report devoted to the differences in objectives, the</p> <p>9 underlying literature and industry studies which support</p> <p>10 this point of view. 16:38:32</p> <p>11 Q. And in the next paragraph, paragraph 7, Mr. Levy</p> <p>12 states, quote: "Professor Tucker's examples or case</p> <p>13 studies are irrelevant for the calculation of damages and</p> <p>14 do not represent the economic value of advertisements but</p> <p>15 a post-purchase benefit." 16:38:49</p> <p>16 Do you agree with Mr. Levy?</p> <p>17 A. No.</p> <p>18 Q. Why not?</p> <p>19 A. Well, he seems to completely misunderstand what</p> <p>20 digital advertising is. Digital advertising is all about 16:39:02</p> <p>21 orientation towards being able to measure outcomes, and</p> <p>22 the idea that there's a separation that seems to be in</p> <p>23 Dr. Levy's mind just ignores how digital advertising</p> <p>24 works.</p> <p>25 Q. Now, I want to direct you to the next paragraph, 16:39:26</p>	<p style="text-align: right;">Page 156</p> <p>1 inconsistent with the proper application of the results</p> <p>2 of Professor Allenby's conjoint survey on a proportional</p> <p>3 basis."</p> <p>4 Do you agree with Mr. Levy?</p> <p>5 A. No. This makes no sense to me. I showed in the 16:41:18</p> <p>6 data that there's a complete lack of correlation in terms</p> <p>7 of people's -- or advertisers' actual behavior, and</p> <p>8 Dr. Levy says, well, that's at odds with Dr. Allenby's</p> <p>9 conjoint survey, but as I detailed in my report, you</p> <p>10 know, there are many flaws with Dr. Allenby's conjoint 16:41:44</p> <p>11 survey, and it seems nature to actually look at what</p> <p>12 advertisers do, rather than some hypothetical survey, and</p> <p>13 I've looked at what advertisers appear to be doing in the</p> <p>14 data.</p> <p>15 Q. Thank you. 16:41:59</p> <p>16 I'm going to introduce another document that was</p> <p>17 previously marked as Exhibit 286. Bear with me for a</p> <p>18 moment.</p> <p>19 It should have appeared in your Exhibit Share.</p> <p>20 Do you see it? 16:42:29</p> <p>21 A. I'm just refreshing in the hope that it is.</p> <p>22 Q. It will be at the top since it's previously</p> <p>23 marked.</p> <p>24 A. Oh, it's at the top.</p> <p>25 I have it now. 16:42:42</p>
<p style="text-align: right;">Page 155</p> <p>1 paragraph number 8, of Mr. Levy's March 23rd report. He</p> <p>2 states, in the last sentence: "Professor Roughgarden's</p> <p>3 simulation demonstrates that given the distribution of</p> <p>4 budget changes estimated from Professor Allenby's</p> <p>5 conjoint -- analysis, truthful disclosure of Potential 16:39:45</p> <p>6 Reach would result in lower CPM for all of Facebook's</p> <p>7 advertisers."</p> <p>8 Do you agree?</p> <p>9 A. No.</p> <p>10 Q. Why not? 16:39:57</p> <p>11 A. Well, you know, first of all, I evidently</p> <p>12 disagree with the inputs that the Roughgarden simulations</p> <p>13 are using to find any blurring of budgets, but even</p> <p>14 disregarding that, it ignores completely the huge</p> <p>15 heterogeneity in ads, auctions, the fact that not all 16:40:21</p> <p>16 advertisers are competing with similar advertisers, but</p> <p>17 instead we have lots of individualized auctions with</p> <p>18 highly selected numbers of advertisers bidding against</p> <p>19 each other in a manner which means you can't make this</p> <p>20 universal statement that other advertisers would be 16:40:43</p> <p>21 effected, even supposing the -- the Allenby and other</p> <p>22 inputs he used in his analysis were correct.</p> <p>23 Q. And in the next paragraph, paragraph 9, Mr. Levy</p> <p>24 states that: "Professor Tucker's analysis" -- this is</p> <p>25 the last sentence. "Professor Tucker's analysis is 16:41:01</p>	<p style="text-align: right;">Page 157</p> <p>1 Q. Great. And this is the March 22nd, 2001 (sic),</p> <p>2 report from Dr. Greg Allenby. Did you review this report</p> <p>3 prior to today?</p> <p>4 A. Yes, I did.</p> <p>5 Q. Did anything in this report change you -- cause 16:42:55</p> <p>6 you to change any of your opinions in any way in this</p> <p>7 case?</p> <p>8 A. No, it didn't.</p> <p>9 Q. So I'm going to direct you to page 5 of</p> <p>10 Dr. Allenby's March 22nd report. 16:43:09</p> <p>11 And on this page, Dr. Allenby includes several</p> <p>12 responses to critiques that you made in your March 3rd</p> <p>13 report. In the first paragraph, Dr. Allenby states,</p> <p>14 quote: "Conjoint analysis does not require the</p> <p>15 replication of the purchase process nor inclusion of all 16:43:31</p> <p>16 product features."</p> <p>17 Do you agree with Dr. Allenby?</p> <p>18 A. So, no, I think he's -- we're talking past each</p> <p>19 other. Look, you can conduct a bad conjoint, which isn't</p> <p>20 going to give reliable results, which doesn't replicate a 16:43:50</p> <p>21 purchase process or include product features. Of course</p> <p>22 you can conduct a conjoint.</p> <p>23 My point here, though, is if you conduct a</p> <p>24 conjoint in that manner, it's not going to be reliable,</p> <p>25 and Dr. Allenby doesn't seem to be addressing that in his 16:44:03</p>

<p style="text-align: right;">Page 158</p> <p>1 response.</p> <p>2 Q. And in the next paragraph, which has in italics,</p> <p>3 "The survey artificially forces all respondents to</p> <p>4 consider features they may not naturally consider leading</p> <p>5 to an inflation of estimated results," which is 16:44:21</p> <p>6 Dr. Allenby's recitation of critique you make in your</p> <p>7 March 3rd report. At the end of the paragraph,</p> <p>8 Mr. Levy -- or Dr. Allenby states, quote: "The presence</p> <p>9 of fairly modest effects for many attributes indicates</p> <p>10 that focalism bias is not present." 16:44:44</p> <p>11 Do you agree with Dr. Allenby?</p> <p>12 A. So, no, I disagree. I mean, I did use the term</p> <p>13 "focalism" and "bias," but what I was talking about in my</p> <p>14 report is, look, I could run a conjoint about a hotel</p> <p>15 room, and I could put in the conjoint the material for 16:45:01</p> <p>16 the bathtub stopper, is it steel, or is it brass? And if</p> <p>17 I run that conjoint, I'm going to get some value. It may</p> <p>18 be modest, but I'll get some value input on the material</p> <p>19 of the bathtub stopper, but that doesn't mean that people</p> <p>20 are choosing hotel rooms based on what the bathtub 16:45:18</p> <p>21 stopper looks like.</p> <p>22 And Dr. Allenby doesn't seem to be addressing</p> <p>23 that critique here. The presence of modest effect sizes</p> <p>24 is not a cure for including something in a conjoint which</p> <p>25 just isn't relevant to the decision making. 16:45:34</p>	<p style="text-align: right;">Page 160</p> <p>1 but perhaps not all, advertisers are making those</p> <p>2 decisions in that dynamic way.</p> <p>3 Q. Thank you, Dr. Tucker. Those are all the</p> <p>4 questions that I have.</p> <p>5 A. Thank you. 16:47:29</p> <p>6 MR. GRABER: I have nothing further. Thank you.</p> <p>7 THE VIDEOGRAPHER: So we can conclude?</p> <p>8 MR. ACOTT: Yes.</p> <p>9 MR. GRABER: Yes.</p> <p>10 THE VIDEOGRAPHER: This concludes today's 16:47:41</p> <p>11 testimony given by Dr. Catherine Tucker. The number of</p> <p>12 media units used was one. It will be retained by</p> <p>13 Veritext. The time is 4:48 p.m. Eastern Daylight Time.</p> <p>14 We are now off the record.</p> <p>15 (Time noted: 4:48 p.m.) 16:47:55</p> <p>16 --oOo--</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 159</p> <p>1 Q. And in the last paragraph there, which states in</p> <p>2 italics: "The survey unrealistically forces respondents</p> <p>3 to make budget allocation," which is, again,</p> <p>4 Dr. Allenby's recitation of the critique you make in your</p> <p>5 March 3rd report, he states: "The conjoint analysis 16:45:59</p> <p>6 includes an outside 'elsewhere' option and allows for</p> <p>7 respondent heterogeneity in the estimated coefficient</p> <p>8 estimates. Respondents are not forced to allocate their</p> <p>9 budget in any particular manner. Respondents who do not</p> <p>10 place importance on an attribute or utilize it in their 16:46:21</p> <p>11 decision process will not alter their budgets in the</p> <p>12 choice task based on that attribute."</p> <p>13 Do you agree with Dr. Allenby?</p> <p>14 A. No.</p> <p>15 Q. Why not? 16:46:34</p> <p>16 A. Well, here he doesn't seem to be addressing my</p> <p>17 point, and the point I was making in what he refers to as</p> <p>18 page 86 is that number one, some advertisers perhaps are</p> <p>19 allocating budgets up front based on their vast</p> <p>20 experience of advertising formats, other advertisers may</p> <p>21 allocate a small amount of budget at the beginning and</p> <p>22 then test it and then allocate budget later on.</p> <p>23 None of this procedure reflects the potential</p> <p>24 for a dynamic nature of budget decisions in a digital</p> <p>25 environment, and nor does it reflect the fact that some, 16:47:15</p>	<p style="text-align: right;">Page 161</p> <p>1 STATE OF CALIFORNIA ) ss:</p> <p>2 COUNTY OF MARIN )</p> <p>3</p> <p>4 I, LESLIE ROCKWOOD ROSAS, RPR, CSR NO. 3462, do</p> <p>5 hereby certify:</p> <p>6 That the foregoing deposition testimony was</p> <p>7 taken before me at the time and place therein set forth</p> <p>8 and at which time the witness was administered the oath;</p> <p>9 That testimony of the witness and all objections</p> <p>10 made by counsel at the time of the examination were</p> <p>11 recorded stenographically by me, and were thereafter</p> <p>12 transcribed under my direction and supervision, and that</p> <p>13 the foregoing pages contain a full, true and accurate</p> <p>14 record of all proceedings and testimony to the best of my</p> <p>15 skill and ability.</p> <p>16 I further certify that I am neither counsel for</p> <p>17 any party to said action, nor am I related to any party</p> <p>18 to said action, nor am I in any way interested in the</p> <p>19 outcome thereof.</p> <p>20 IN WITNESS WHEREOF, I have subscribed my name</p> <p>21 this 14th day of April, 2021.</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>  <p>LESLIE ROCKWOOD ROSAS, RPR, CSR NO. 3462</p>

1 Francis Acott, Esquire 2 francis.acott@lw.com 3 April 15, 2021 4 RE: DZ Reserve v. Facebook, Inc. 5 4/8/2021, Catherine Tucker , Ph.D. (#4502127) 6 The above-referenced transcript is available for 7 review. 8 Within the applicable timeframe, the witness should 9 read the testimony to verify its accuracy. If there are 10 any changes, the witness should note those with the 11 reason, on the attached Errata Sheet. 12 The witness should sign the Acknowledgment of 13 Deponent and Errata and return to the deposing attorney. 14 Copies should be sent to all counsel, and to Veritext at 15 cs-midatlantic@veritext.com 16 17 Return completed errata within 30 days from 18 receipt of testimony. 19 If the witness fails to do so within the time 20 allotted, the transcript may be used as if signed. 21 22 Yours, 23 Veritext Legal Solutions 24 25	Page 162	1 DZ Reserve v. Facebook, Inc. 2 Catherine Tucker , Ph.D. (#4502127) 3 ACKNOWLEDGEMENT OF DEPONENT 4 I, Catherine Tucker , Ph.D., do hereby declare that I 5 have read the foregoing transcript, I have made any 6 corrections, additions, or changes I deemed necessary as 7 noted above to be appended hereto, and that the same is 8 a true, correct and complete transcript of the testimony 9 given by me. 10 11 _____ 12 Catherine Tucker , Ph.D. Date 13 *If notary is required 14 SUBSCRIBED AND SWORN TO BEFORE ME THIS 15 _____ DAY OF _____, 20____. 16 17 18 _____ 19 NOTARY PUBLIC 20 21 22 23 24 25	Page 164
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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

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COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

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